

DRAGON



USER

November 1985

The independent Dragon magazine

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Editorial

MERCY. Just for one month, let us off about the deliberate mistakes, will you please? I expect you found a few in October's DU. I hope you did... I don't want totally blind readers. Let me just say, you should have seen it the way... you nearly got your old front page back, you know, the one that says "Sunshine Publications". I don't want to mention the "P**stal ***ts" in Dragon User ever again, but there was a wee bit of a rush. And we have a new type-setter up (Linda), totally innocent of any Dragons in the past, and a new pastie-up person at the same time, and Pete plopping writer's block (but we get him in the end. Send him some letters and cheer him up) and you can have hours of fun drawing in the Dragon logo on the Crossword page yourself.

I insist by saying this that I am calling Ms. God down on this issue, but we are watching...

Further details about the Colour Computer Conversion from Dragonfire on page 5 within. Don't forget to go if you can. This is the Dragon show of the Autumn. We want one next Spring.

How to submit articles

The quality of the material we can publish in Dragon User each month will, to a very great extent depend on the quality of the submissions that you can make with your Dragon. The Dragon computer was launched on to the market with a powerful version of Basic, but with very poor documentation.

Articles which are submitted to Dragon User for publication should not be more than 3000 words long. All submissions should be typed. Please leave wide margins and a double space between each line. Programs should, whenever possible, be computer printed on plain paper and be accompanied by a tape of the program.

We cannot guarantee to return every submitted article or program, so please take a copy if you want to have your program returned you must include a stamped addressed envelope.

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Letters

Atari nice to Dragons

The following is an extract from a recent Atari magazine:

"The use of custom-chips rather than standard off-the-shelf designs makes its architecture one of essential economy. Following on, in fact, from the mould set by the Dragon, would you believe, their design, though ambitious, was very much a pioneer."

Isn't it a nice change to see another magazine giving the Dragon a bit of credit, instead of making fun of it?

Finally, using the same source, Dragon User and all the software houses which continue to support the Dragon. Keep up the good work.

David Boworth
3 Chelton Road
Sage Cross
Tunbridge Wells
Kent
TN4 14G

TES (48000), although most excellent, remember the Dragon with affection; it's one of the best old microcomputers who think it was a toy machine like the ZX81.

Now, it would be useful to marry hardware with the software, and in what magazine it appeared and, if possible, when. Information is power. Can you help?

Dump help!

RE: #1 I modified the screen dump program from the November 1987 issue for the Brother 1020 printer by disc user (under SuperDOS 100), I couldn't understand it completely, the tall sideways dump printed out a large dot band instead of the diagram. I consulted a bit of documentation/brother standard printout work, but nothing helped. My printer is the Texas 1000.

24 Craig
Millbrook Close
North Road
Cambridge
CB4 5NU

This is your chance to air your views - send your tips, compliments and complaints to Letters Page, Dragon User, 48 Alexandra Road, Hemel Hempstead, Herts HP2 4AE.

Every month we will be shelling out a game or two, courtesy of our supplies, to the readers who send the most interesting or entertaining letters. So send us your hints and your opinions, send us your findings and suggestions. Send us your best Dragon stories. What do you think we are, mind readers?



I put a spell on you

RE: #2446 Jonathan Cartwright's opinion Data Treasures (July issue) was impassioned by the simplicity of his spelling checker. However, on more thoughtful consideration, besides it would work! The algorithm processes whether each pair of letters in a given word is "legal" within the framework of accepted English spelling practices, and/or several pre-set, pre-programmed key repeat, or the punative author of *The Glare* Mississoula would claim. On a keyboard my dedicatory fingers (I am six foot five) often spread over the keys. Yet a sense of pattern in the system: he is right saying:

Legal words, better, better letter, letter... Possible words, better (but) not legal in those positions, but this is not an English word! Similarly, both and both and possibly both are English, but both and both are not, but they are still legal.

The permissible combinations of pairs of letters in English should lend themselves to the type of approach described in the article, but the unfortunate fact is that not all permissible combinations and groups are actually in use. The language therefore probably 50% redundant (Doesn't that's why have to cut my sentence by 50%). For instance, Ed has Pete Garrett a piece of gravel in his nose. A.D.V.N.T.R.G. contains the same (usual) without

invoking those "words" that we do.

The awesome fact of redundancy in the language is frequently brought home to me by the difficulty that Patricia, who works hard as the co-ordinator of the charity of which I'm chairman (since she kindly offers to type correspondence for me) has in matching my vocabulary with her comprehension board. The fundamental survival-threshold systems is that adjectives? (Could the telephone be?) Etc., are represented by similar symbols even if these meanings are different. Increasingly, educational attempts to do this kind of thing are useless.

The proof reading on D.U. seems to have been undertaken by just such a routine. Refer to the somewhat garbled printer dump on page 3 of the July issue. The listing approach was confusing to say the least. The omission of some characters and/or apparent substitution of others made it difficult to read. Could it be renamed at some time?

Would you be interested in the use of Dragon Basic as a structured language? The main point of listing I have says in D.U. seems to violate every principle drilled into me when I had to learn how to cope with your parents, promise yourself I would try to express anything that I wrote in a simple version of the language.

Eddi Aron, 20 Clarence Place,
Gravesend Kent DA1 1 LD

Let's start off the bottom and work up. I think that would be interesting. About 1980 worldwid a time is therein as acceptable, with examples

and any necessary listings.

This is a good place to grab my greyish attitude and recycle same (apart for all the prospective accolades I have sum-

Ribbon you can't refuse

ANYONE who is having trouble finding a ribbon for their QL1000, give me a ring on 0475-716865. Mondays and Wednesdays only, for stock on hand please.

Chris Sheppard
110 Shalford Close
Southgate
Hertfordshire EN4 7QZ

indeed this month:

The first rule of sound keyboard writing, as taught to every authority, is "keep it simple, concise and direct". This journalistic approach is report-writing; others only in that the active tense is preferable to the passive tense. ("The computer was plugged in and booted" — by whom, may I ask? Say "I plugged in the computer and booted it.") Avoid convoluted punctuation, lists, and other words over these syllables. Above all, do not try too hard to force a writing style. Editors can always cross out anything they don't like. That is what they are there for.

They are also there to offer programming tips for the letter page, so such tips rarely arrive in a readable state. They check them. They get them typeset. The typesetting machine matches some of the characters (yes, it's all done by computers). If they are lucky, they get to check them again. If not, they don't. I can't re-enact that listing unless Harvey of Data Treasures writes to me and tells me what's wrong, and I have lost the original. Please, is absolute, why there are errors in it. You don't need the Evening Standard, then?

No amount of editing experience prepares one for the horrors lurking in computer listings, and I include listings taken straight from the computer.

The first person to come up with a suitable definition for "border" will get one of those tapes from the BBS.

Newsdesk

Kouga gets the ball rolling again

Kouga Software is to release a new game, called *Ball Doctor*, which, according to Julian Foster of Kouga, "has many of the features of the classic *AtariPong* with bonuses heating down the screen, including lasers and an easel, but, among others". The game requires 32 screens full of randomly placed tricky lasers, and a game after screen 30.

That doctor was written in machine code by Stewart Orme. Kouga are looking for further authors, and are offer-

ing around 50% royalties. Orange Software will be marketing disc versions of Kouga's games at the same price as the cassette versions, and will be representing Kouga at the Colour Computer Show in December.

"I have at last subscribed to DragonUser's add-on Disc," John added, "because of the way selected Dragon games have been going."

Perhaps one day Kouga will be writing that they can knock through a few bold bolts into the present computerised advertising.

Get your adson

... and while we're talking of advertising, Dragonlanders, don't forget that the December and Christmas issues are coming up, when the Dragon is looking for Christmas gifts and presents to spend their Christmas money on. Even the

longest memories need updating and reminding about what you have on offer, and special offers are especially tempting round this time, spot us now - soon! - if you want advertising space in one or both of these festive issues.

Copy dates

Advertisers! Please get your copy in for setting by the end of the third week in the month previous to the date of publication. Ad. copy for the December issue should be with us for setting by the third

week in October. Self-originating copy (DTP'd) can be sent in a week later. Any later than that and you'll have to run behind the postman and hand them out yourself. Save the teacher! Send us your copy.

The National Dragon Users Group will be releasing a desktop publishing package early next month. The program is a licensed conversion of a USA C64 program by Falsoft, improved, enlarged and converted to DragonOS, and will sell for around £12.

NDUG's Paul Oxane said: "Our DTP program was simple and so cheap to manufacture, all menu-driven, so that no instructions are needed." When hope a review will follow shortly.

Enquiries to NDUG, 6 Navigation Road, Worthing, Sussex.

Don't forget the Colour Computer Convention in Weston-Super-Mare on 4th December.

If you have any news products for the Dragon — software or hardware — please write to Tim Newmarch at 45 Almondsbury Road, Horfield, Bristol BS9 8HP.

New keyboards make contact

Siegfried Schraubender GMBH SGZ, Hamburg-Billstedt, says these Dragon fans been in touch to say that holidays and office removal have prevented them from having a touch screen, and that they are a very small company producing add-ons for the Dragon. The interface, mentioned on Dragon User's August Newsletter, with a hardware clock and action keyboard, features 84 keys including 16 function keys and a number pad.

The interface board comes with an Ergonomics unit and soft switches (DS23 and DS24). The full interface costs £49.95 including VAT, and a clock-only version costs £29.95.

A knowledge of soldering is needed to install the interface in the Dragon.

The company's new address is Siegfried Schraubender GMBH, Alexander-Doechel, Mühlenstraße 24, D-8530 Erlangen, Bundesrepublik Deutschland.

Life on the cheap

SolveSoft's manager of SolveSoft, Ian Scott, heading to more commercial pastures, has been in touch to say that his series of adventure games is still available from SolveSoft as a package and £10 the hour, a saving of £5.

The titles involved are *Starcross*, *The King's Quest*, *The Quest for the Meaning of Life*, and *Thieves of Tyria*.

For purchasers who already

have one or more of the games, an additional price of £4 per game is available.

The games are also stocked by Orange Software, but Dragon User's understanding is that, at the present time, this offer applies only to games ordered from SolveSoft directly.

SolveSoft, Crawley Hill Farm, Uley, Gloucester, GL2 1BB.



Untersteck by the Vikings at High Wycombe, the Stratford-upon-Avon Village Car Rally, Sunday Lunch at the Bridge Club and Gaudi's the Cell, the latter ahead of the October issue Colour Computer the tenth of October Lee, dragons try harder!

Dragonsoft

Custom control of cash assets

Title: Business Finance Recovery System
Supplier: Llewellyn Robins Studies, 64 Exchange Rd, Newbury RG14 2QG, UK/01635 514444
Price: on application

This is an accomplished book-keeping system for the small business owner. It provides all necessary facilities for the VAT-man as well as reporting such vital things as which accounts are overdrawn and who owes you money. It runs on the Dragon 640 plus C64, alongside the Dragonplus board from Computerworx.

I must say that I was surprised that the program has survivor status to Dragon Data's own CashandVAT package. Indeed the author of the present package, Llewellyn Robins, writes it to remove some of the frustrations he had experienced while using CashandVAT over a long period of time. His decision to make use of the Dragonplus board stems from decisions improve the display of financial information alternative menus, which he had to split over several screens in the 32 column display of the original version, and to make use of the extra 64K of memory to vastly improve the speed of operation and give more room for the data for accounts etc. At the same time this does limit the number of potential users.

Llewellyn has not just modified CashandVAT, however. Since the original authors have 'gone away', the new program is completely rewritten and includes extra headings and categories suited to his own photographic business. The source files can of course be adjusted so that it can be tailored to the user's requirements, and will be supplied 'made to measure'. The program allows effects to improve the range of business software available, and has been thoroughly tested in the author's own business. The end will depend on the amount of work required to implement the software in addition to take advantage of the 'extras', based and tested to mention the sacrifices made by his team.

(partner window) in the writing of it rather than to make a better-looking package.

I must confess I found an impressive package. My review may have limited impressions, but I believe it compares very well with the programs it attempts to use and the main system is, as well. Thought out. But I was using it confidently after just a few minutes of experimenting with the state of memory data provided.

A small procedure has introduced the use of memory as a handle and automatically copies onto this a mixture of special program modules. The old system replaced by the new facilities are ready to go.

From now on, response to commands is virtually instantaneous apart from when files are saved or an entire section of the database. There are three buffers in the缓冲器 enter new files, to overcome any existing file or to obtain reports. The response may take a second or perhaps less, but is definitely of just a few milliseconds. The VDU output may also be controlled in several ways and will produce a full printed statement.

Other options allow exports on bank account transfers between deposit and overdraft accounts, payment of credit card accounts etc. A special option allows program parameters to be set, so that if the VAT rates changed this can be entered permanently into the program, aucun programme temps, etc. CashandVAT requires a VAT rate to be entered each time a transaction is recorded.

Once a transaction is recorded a new menu with no less than eighteen different categories of income or expenditure is offered. Apart from the sale of one's grandfather it is hard to think of a category not covered. Having noted the appropriate category, prompted for full information including cheque numbers, whether payment had been made or future, at each stage the menu will reinforce press the F1 key to help. Choose your information, entered, accounted and the bank account enquiry shows that all necessary adjustments to your

new software for review should be sent to Dragon User,
18 Alexandra Road, Hemel Hempstead, Herts HP2 4EP

The proof of the tart is how hungry you are

Title: Diamond Miner
Supplier: Dragonsoft Services, 19 Perry Jones C Lane, Beacons, Gwent NP13 2AE.
Price: £3.00

PCP's somewhat unusual feel that a game called Diamond Miner should be a platform game. Thankfully though it doesn't fail to do another review of a Mario-like game, and it's in fact a fast adventure, with quite a few twists in the Dragonsoft range.

The scenario is that you have to steal a clock diamond from a mysterious and at first seemingly unassisted miner. Your task is assisted by the fact that you are an invincible thief! An eagle, boulder, explosion and stealth carts, dear reader. Despite this, getting your task is still tough.

You start off on a pathway, your visual passage blocked by the small of birds, that's a description reveals the, and can only remember a handful of times it's been been made use of.

Exploring further away from your little position you find tracks, hills, wages nests and the door to the treasure chest. The writer as anyone would rightly do has made sure the doors closed and that you can't open it again that you need to keep at the back of your mind while you explore.

One disappointing factor in my opinion though is that the location descriptions and time to try the last. For instance: "You are on a small dirt road" does not exactly inspire the imagination to search around the picture of the surroundings.

Having made that point though I must say that I would find it difficult to say anything more interesting about a dirt road except, "You are walking along a smothering dirt track road, the orange glow of the setting sun gleaming from the pools of shiny black mud doesn't really have that perfect polished feeling, no perhaps



Gordon Hartley

Dragonsoft

New software for review should be sent to Dragon User,
49 Alexandra Road, Hounslow, Middlesex TW3 3RF.

here the author was right to opt for simplicity. Only playing a choice of 'Down the Ditcher' or 'Once you get into any task though location descriptions parameterised and hierarchy your best to get into the subtleties of the art quickly.

The adventure is portrayed on screen in standard green block text which I find disappointing having seen the format for our earlier print. Subsequently it's very extensive with in most cases choice of verb (for instance synonymous verbs you can only think but say). All in all there are over 60 commands which are entered in the standard way of up-to-hour.

The game is not one of the hardest that I've ever played, but in no exactly easy either. There are added difficulties like the gardener who wanders around either picking what you're carrying or impeding if you've nothing worth stealing.

One interesting point is that my copy is an early version. Dragonsoft are refining their texts before release all of which will have been done by the time you read this. Andrew Hill of Dragonsoft describes these bugs as spelling mistakes and punctuation omissions as well as an error in the location as to your accessible directions. As far as spelling and punctuation, it's noticeable that they really care about their products, especially when the faults are surely rectifiable. It's a welcome thought that consistent spelling of 'mine' in Olympia that bothers me.

Dragonsoft could easily leave this title as in my copy but take pleasure in selling the public the product perfect. As an adventure it's almost perfect. It's spending much a sum of the mill type adventure, but not bad.

Philip Scott



is not a serious fault, it would have been much easier to display a message saying that the directory doesn't exist.

The enhanced directory facility is really super. Dates can be chosen to either screen or printer and not only lists the file names, but also their position on the disc and the start, track and seek addresses to boot. The pointer output is very nicely laid out, with a space between each file and the file name printed in bold type. The latter could present problems for some users, so no information is supplied as to how to reconfigure the program for a different printer. It prints well on my Amstrad, which is Epson II compatible, but if you print uses a different code for bold type then it could cause a problem. As the program is written in Basic, it should remedy presents itself. Pulse

need only print the number of file lines containing the printer codes so that the user could simply change the codes and reconfigure the program.

All these criticisms are of a fairly minor nature and, when the size of the program taken into account, fade into insignificance. A more serious problem arises at the copy routine as geared to two disk drives seems to accommodate a copy of programs using subroutines. All the other facilities will work equally well on one or two drives. My advice to any user is to get yourself a copy of this program and use it to make copies of itself on all your discs. Once you have copied, you will wonder how you ever got by without it.

R.M. Thompson



Simplest is best

Program: Copycat (Julian)

Price: £3.49 inc p&p

Supplier: Pulse Software, 36 Fossell, High Chorlton, Shaw, Didsbury, M22 7HQ

At some time or another most disc users will have had to indulge in file housekeeping, by which I mean tidying up the disc, deleting old unnecessary files and copying all files relevant to a particular activity, onto a separate disc. This is probably one of the few lessons we learn in computing. Pulse Software have come up with Copycat. Written in Basic, this simple little program will be invaluable to disc users.

Copycat is a program that uses a very simple technique to delete files. Copy, Protect and the protection on any or all the files on a disc. This only means that you can't protect the disc that will do all the aforementioned tasks with just one key. Once that's done it makes the other subsequent protection assignments only. Much of the main procedure allows you to

manipulate all the files, protecting individual files, and as the system works its way through the directory it always offers the facility to abort or treat all the remaining files. At any of these points typing 'Y' would treat only the first filename displayed.

The search facility is a little disappointing in that it does not repeat. Granted, it does search out a file even if the whole filename is entered (and not normally). But, compare to, however, the system seems to think that it is intelligent and automatically assumes that the filename ends in the format you want. In addition to this a repeating search facility would make it much easier to copy all the text files by entering .TXT when in search mode.

A small source of annoyance is the way Copycat deals with empty directories. If it chooses to put in, and it is attempted to copy a directory if there are no files. The same thing happens if you try to delete a directory, when the program attempts to display the directory for the disc, and finds it empty. Although this

But will it stick?

Product: Seal 'N' Type keyboard cover

Price: £3.95

Supplier: P.L.A., Preston Kings Hall Court, 24 Billes Major, Mid-Glam, CF13 9BG

THE Seal 'N' Type is a clear flexible plastic cover ingeniously custom made for the Dragon keyboard. It consists of a flexible PVC case which is attached directly over the keyboard with double-sided adhesive and a strip of Velcro. The effect of the cover is to fully protect it at all times against spills, dust, and grime, while enabling typing through transparent units passed.

The theory is sound and the instructions concise, although they do not mention the Velcro. Using it theoretically is easy: all you need is a hairdryer to blow heat and some warm fingers. All you then do is squish out the cover keys, fit them over the keys on the keyboard, attach the double-sided tape by peeling off the backing, cut for the trackball, cut for the trackball, and that's it! Under no circumstances

I have a problem. 'Microquid' doesn't damage my keyboard plus a full back cover, a result

pack interface attached, plus the usual Dragon accessories. Unfortunately, I've had trouble with hand holes not closing. Fortunately with patience and backlengthed manuevering I can usually carry out an extremely simple solution which anyone should be able to manage with ease.

Finally came the moment of triumph and I started to type. I thought for the first few lines that it may be simple though, but the iteration is difficult to describe: the sense of having ten fingers there, and somehow managing to type.

The problem with trying to make a keyboard you can't type. That's why I've devised this test: see how many words I can type, taking for most part from easy, and just scratches. I wonder if the investment will really worth it. However, I will persevere if only to get my money's worth.

I will in due course report on how I've got on. Furthermore, if anyone is interested go to the disc section of this issue it would be fine.

R.W. Wren



Something stirred . . .

Roger Merrick digs into the history of the Tandy CoCo

I bought what may have been the last BBC Basic Coco Computer in the country. Knocked out at £29.95, for me it was a very inexpensive solution to the high cost of upgrading a Tandy CoCo to provide memory available from Tandy, but also recommended to the high Specifications of one of the greatest and most enduring home based machines.

Without the CoCo, the Oregon would have been a very different board, if it had existed at all. As the CoCo never sold very well in this country, it is likely that its passing will go relatively unremarked. A measure of how small the user base must have been although the machine was on the market for several years longer than the Dragon, and although Tandy had them on sale in many high streets, no group or magazine solely devoted to the CoCo has ever existed on a national scale in this country. The machine was virtually discovered by the *British Box* (Tandy Model 1, 2, 3 and 4).

The CoCo has had an amazingly long lifetime in computer terms. Through a period of rapid change and development, it was first shown in the US in July 1980, at the same time as the *Box* (as did) Tandy Model II, as it has been with us for eight years.

The design has, despite idiosyncrasies, proved to be remarkably adaptable and, even today, can be recognised as forethought. It was originally issued in a large grey case with (as you believed) 4K of RAM, 8K (non expandable) BASIC ROM, and what was described as a 'dual set keyboard (joystick)', it offered 'Color', plugged into a domestic TV and came complete with cassette, joystick and RS232 serial ports. The most forethoughtful inclusion was the RS232 port as standard.

A month later, a modified version of the machine was introduced as a dedicated terminal for an American Prestel-type service called Videotex. Unlike Prestel, Videotex used a 32 by 16 terminal screen (sound familiar?).

Precious memory

The reason for choosing the 64x48 character display as a 'box' or 'window' in the TV screen is that this requires a smaller amount of memory, which was in those days precious and expensive. A small number of characters per line enabled the display to be used in a domestic TV, saving the user the cost of a monitor. This, in retrospect, can be seen as an unnecessary decision to make. The amount of time consumed by the family computerised leggywings the human family who might be expected to prefer watching the events of Albert Drosses in the disassembly of the Basic ROM. Unsurprisingly spent peering at a TV screen are held for the eyeight. Still,

that was the way it went.

Father Christmas could have brought you a BBC Extended BASIC model for £69.95.

For approximate British prices, just call the *Box*'s power! By contrast, the top of the range Trilogy Model II was £6495 for a 32K ram, two track drives, with a monochrome display. The entry machine with 4K was £3995. Tandy's first dot matrix printer retailed for nearly £1595.

It was 1981 before the CoCo appeared in Britain, by which time the £6495 price tag, plus the lack of immediate appreciation in sales, and the competition from homegrown systems resulted in lackluster sales. It was impossible to get any information from Tandy regarding sales until mid 1986 when to the great surprise of industry commentators, Tandy began to reveal their claimed sales figures. For the first quarter of 1986, a time when the machine must have been past its first flush of enthusiasm, Tandy claimed 37,000 CoCo sales in the US. However, similar figures for the UK are not available.

Although the machine was on the market several years longer than the Dragon, no group or magazine devoted solely to the CoCo has existed on a national scale in this country.

Then there was the software — mainly from places available at £25 upwards for typically 16K of code. By the way it is totally unrepeatable feature of the Home-estimated it can store and load nearly 250K of code, despite the cartridge space being only about 16K. Hint: Sample the RAM pack; it contains two banks of 8K ROM; bank zero is loaded into RAM, then bank one is searched in and the program is executed. This is a strategy required in the cartridge port and can be discerned from published Tandy data and applies to the Dragon. Can anyone name a ROM pack to use this?

Just a few months later and the nation was in the grip of the *mania* between *Bomberman*, from nowhere, the Dragon.

The Dragon's specifications and price tag combination hit the CoCo's already precarious market position. Dragon's 32K Ram, expanded BASIC, real keyboard with parallel port and monitor as well as TV output for 199 made the CoCo's 16K, 16bit parallel keyboard, no monitor output, no parallel port output (but plus RS232C) look sick. Along the way, CoCoes with 32K, and 64K options became available.

rumours which originated in my hearing by Tandy salesmen of the Dragon's poor quality (extremely unorthodox) or an aircraft hanger full of drift Deligards. They use inferior components. If you buy lots of these, statistically you'll need to start it back three times before you get a function that works. Oh, and pay extra because they say your startup business being enough to catch it. As you see, I didn't forget, I'm still waiting for my Dragon to develop a fault. Up the waz.

Exaggerated

The Dragon did amaze Tandy, and not least because a year earlier they had obtained an option to stop Lucas Electronics importing and marketing the *Video Game*, an enhanced copy of the TRS80 Model I. The Dragon was just sufficiently incompatible with the CoCo to avoid this fate. But again, these incompatibilities were never fully and accurately documented, and they were over-exaggerated.

Dragon Data Ltd, of course, had to oblige. In early 1984, the CoCo Computer was relaunched in a repackaged, redesigned and repainted in all white case with a real 'feel' keyboard, updated BASIC ROM, more software and incompatibility with 'series 1' disk controllers.

Our Computer magazine reviewed the software and hardware combination of the new CoCo II, the 'series 2' disk drives and QDOS. They pronounced themselves favourably impressed. It is a nicely styled machine, and the looks have been carried forward in the CoCo II and the T1000R.

In some ways, the Dragon's ability to run Tandy CoCo software was part of its untiring Dragon Data and other companies launched out of date software written for the smaller memory CoCos, software which provided much and delivered little.

Amusingly, Tandy did not manage to sell third party software until the Dragon was well established indeed, Dragon Data were not trading. These programs were written for the CoCo in the States, converted by Microdata for the Dragon, had their incompatibility tested on the Dragon, and were then released for the CoCo. At one point in the collapse of Dragon Data, it appeared that Tandy might actually buy and sell off existing Dragon-ware. The bitter fact that it never happened.

Lost interest

A range of exciting peripherals chilled onto the market, but at the very time it needed promotion, Tandy seemed to have lost interest in promoting home entries in Britain. Internationally, they had seen their position as one of the top three major manufacturers in 1980 (with Apple and

Computers) waited until they were just finishing with the test; the published sales figures showed their BBC/CoCo machines were the biggest sellers. These strange marketing policy shortly shocked their own products; in these stores I heard that third party support for the CoCo had to end by November. This policy has now been dropped, it was too late for the CoCo, but now you can buy an Amstrad.

The CoCo had been evaluated for use in schools as part of the MEC programme that taught us the (not so) very wonderful Bees. The CoCo was rejected because it did not offer upper and lower case as standard. Tandy never made any attempt to deal with this problem by either software or hardware, until the introduction of the 8847T II, a version of the VDS with selectable lower case character set. This chip must have appeared from late 1983 onwards, but production was discontinued almost as soon as it was introduced. In this country, permission of the CoCo had stopped and although machines were on sale with the lower case chip, the feature was not documented. The system details in the 'Normal' state switches back to lower case when anything is pressed in the screen. If you have a CoCo check with your supplier if it has the lower case chip. My first

16 FOR X = 1 TO 255 : POKE 1604 + X, 8 :
NEXT
20 POKE \$HFF22, PEEK(\$HFF22) OR 64
30 GOTO 30

This little routine displays the character set, sets the 8847 to display lower-case and a white border, and holds the screen display by looping at \$0. Tandy users without Extended Color Basic must use 160314 instead of \$HFF22. If you want to upgrade to Extended Basic, contact me.

In CoCo OS-9 v1.1 or later, try the following, which can be built into the startup routine:

```
TMODE TYPE=1  
DISPLAY E  
CDEBT JF22  
-58  
Q  
TMODE 1-LPC  
(Control Q)
```

This tells the system that access compatibility is in the terminal, prints the system, sets the bits (primarily hardware), tells the terminal and finally switches on lower case with a coloured border. CGA users have the advantage over others that the lower case display will remain in use until it is turned off.

For Dragon users wondering about the possibilities of this chip there is only one I have no information, but believe the chip cannot be simply substituted for the old 8847 on the Dragon's PCB if I'm wrong, please contact me. And it is out of production.

The point has been made elsewhere that the CoCo system shows signs of having

'just grown'; a 64K system has the Basic starting point half way up the memory map; direct page is from address 0 upwards; insert a disc system and you have direct page, text screen, disc system variables, graphics, user Ram and then the Basic, topped off. In CoCo 64K format, by 16 or 32K of unaddressable Ram, followed by more system. Why, we ask, didn't it get designed from address 0 upwards system, basic, disc, cartridge, graphics, user Ram? I suspect because the opportunities the system offered were exploited and developed over time.

What of the future? You probably already know of the CoCo 3 currently available in the US at present, though some time ago Tandy sales persons were dropping hints that 'soon', maybe next year, 'a new machine, that's compatible with the present CoCo, may be introduced'. Well it's a year later.

But I hope the CoCo 3 happens here. The new machine uses custom chips to offer total display and software compatibility with the present CoCo, but PLU3 selectable 40 or 80 column display. A custom memory manager chip allows 512K Ram. The machine powers up in good old Microsoft Extended Color Basic, but Microsoft Super Extended Basic is on-board, to be switched in when required, and with a disc connected, CGA level 2 can be booted.

If this machine does appear over here, my question will be asking is 'can we upgrade our existing machines?'

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DRAGONSWORD!

Paul Grade takes a monthly stab at setting the world to rights

HAVE you ever managed to discover why you bought a computer? Did you want to join "The Age of New Technology"? Or believe a computer would help you With Your Business? Or were you one of those who watched all those ads and thought a computer could tell you the answers to all your questions?

If it was any of those reasons, you must have a lot of excuses by now from looking yourself for wasting all that money. The same applies, however, if you were merely trying to keep up with current fashion, because at the time you'd carried your shiny Macintosh home and plugged it in had been made possible by the Even-Hauer Mega Machines With Added RAM for Winter Windows.

You just can't win, can you? Because having lumbered yourself with that horribly expensive lump of plastic, you then found that it needed a printer, and of course you had to buy that too, so you spent more and so on...on a clunkified case, only to discover in the next batch of reviews that it couldn't handle the graphics you simply HAD to have, so you ripped out again, shelling out to arrange an upgrade, and bought an RGB dot matrix, which was fine really, except that all the experts suddenly started proclaiming that only a business person would use anything less than a 24-pin printer, so what could you do but phone Acer to increase your credit limit and head out again to buy one of these Ultimate Peripherals.

Still, broke and exhausted though you were, you had the satisfaction of knowing even the *Journalist* couldn't keep you with YOU, except that no one could possibly use a cassette recorder with a computer. It had to be a fast tape drive, so where more into the shops...but of course the bug got stuck in the traffic, and by the time you finally got home the manufacturer of your fast tape drive had gone out of business, and anyway, no one could possibly use anything as crude and noisy as anything to power the carvery and furing. For some reason around the kids' needs it was back to the shops again, never mind it was none of them in particular recarped down by you, but even scarier of them to sell you that an inch single-sided floppies come complete of hundred pounds. It's just that everyone else had decided that double-sided drives were the thing, so you had to ped all the new basic to change it, and then it didn't help because multibyte-40/80 track switches had become the only possible kind of drivers via. It wasn't much of a difference really, because the Friends Building Society had already repossessed the house, the kids only finished a tennis each, the bank had taken this cat, and you'd lost the pawn ticket for the carvery, but YOU HAD THE ULTIMATE SYSTEM! except that the computer soon went over and you couldn't even give the standard thing away, so the only thing left was to try to use it.

This doesn't apply to you, of course, because you bought your computer to Help You Run Your Business, didn't you? And it did, right up until the time that nice man from the Receiver's Office came and took it away along with the rest of the firm. It really was a good investment, it reduced paperwork by 50%, although it's strange how your stationary bill went up by 500% in the first month after you bought it, and of course by judicious use of representations you were able to negotiate that by next year you would be well into making your third billion...there have been like unexpected matched fluctuations or something like that, otherwise you wouldn't be a registered bankrupt now would you? Naturally, it raised you a fortune in accountancy fees, and it was most unseasonable of the Court to insist that recovering VAT was your fault, after all, there was nothing about VAT in the software manual, was there? Still, never mind, think what a mess your business would have been in without the help of a computer system...

Some friends forgot you, sitting there in the corner watching the old Star Trek video, literally with pride often manufacturers not to mention that computers need software, used that unlike the ones seen on the box, you have to load a program, and then call up a file, before you can see your machine a simple little question like "What is a CD, what is the Question?", and then it comes up with some peculiar code message in the corner of the screen and Sally refuses to communicate with you at all. Sally never had problems like that.

Has it ever crossed your very big mind that you have been conned? Ever thought that computers might NOT be the newest wonder of the world? and that the computer industry might have the same level of competency as a flying instructor with a kamikaze squadron? Yet, I am fully aware that this is beyond me, and that I will probably be foamed at the sides as soon as BBC and the CIA have finished with me, but who wants to live longer? This one thing that really worries me is that people have become so gullible now that generally they don't even want to know whether they've been conned. Remember the old tale about the Konga's New Clothes? Well, I supposed to the last who ate that can of spit? There's no mention of him living happily ever after, is there?

I know this can't apply to you. You're hard-headed, logical, calculating and unswayable. But why are all those people who keep naughtying and banting on buying the latest computer technology? A computer is only a box of switches, there is no magic involved, and if it has about as much intelligence as a postbox.

I admit that a computer has some uses, although they are usually the things that nobody uses it for, but if its primary use has always been the extraction of money from punters, I bought this originally because much of my work is connected with the

use of machinery, and as "computerised control" was creeping in just about every sort of machinery, I reckoned I ought to learn something about the things. One thing I learned quickly is that most machinery works better without it.

Computers could have been great help to a lot of people, and made life much simpler in business and engineering, etc., and they could have given a lot of people a very cheap and instructive tool, but the entire industry and its management decided it was too good a chance in hell, that changes in administration cost off all the people off the lotus, so we got hardware firms bringing out new machines every month full of non-computer, of course, with new added. Then, the wonder ingredient that makes the price bigger than big, and there was a thousandfold range guaranteed only to lessen their real value. And, finally, the business systems, guaranteed to solve all your problems, at prices which made even a healthy credit card look like a load.

Noise of that kind you did it? You knew this wonder technology was worth every pence, you had to have the best, and that meant keeping up to date.

Did it ever occur to you that you could write the software yourself, that you didn't need to change your machine just because it was no longer being pushed by the manufacturers, that not only could you have written programs for your own use, but you could have made a little cash by marketing them as well? And that even a smaller computer than the Dragon can handle files and programs limited in size only by the capacity of its discs.

If the punters weren't so gullible, the manufacturers would have been forced to adopt a more realistic policy; machine compatibility would have been unnecessary in order to sell the things, and prices would have dropped accordingly. More to the point, the "Home Computer Fiasco" would never have happened, and there would instead have been a free market, much more permanent market, and more progress, because manufacturers would have been forced to improve the product instead of merely changing it and adding a new case.

The decline and fall of the Home Computer Empire is the direct result of the greed of manufacturers and the gullibility of the public. It could have been something really good, really useful, instead of just another rip-off, but don't blame the computer firms...if you had been as eager to have it easy, they couldn't have conned you.

If that's all just history then how come Atari, Amstrad, Commodore etc. are still selling mediocre products? Writing might? They aren't all first time buyers. A lot of them have come from the Dragon and Tandy series, which would seem to indicate that people never learn at all. Think about it.

IF YOU OWN A DRAGON, TATUNG EINSTEIN, MSX, ENTERPRISE,
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Crossword

Please get your answers ready to Dragon User Competition Department by
End of the month via the following:

The health Dragon Crossroad surveyed the lone recruit. "Well, you're terrible, you thought you'd join the Earth Dragon User Crossroad, did you?" They the best they can do, then, tell a dozen? Normally, we have 'Undead', 'Undead'! What are they playing at?" "Excuse me," Sir Squashed snarled supervisively. "We only escaped yesterday after two weeks at the bottom of a dark, damp postbox. Lots of our friends are still trapped, along with several Dragon User contributions. That roaring noise you can hear is The Editor trying to kick the postbox down."



All the answers are names of Dragon software. When completed, the column marked with a triangle will spell out a phrase.

The process in CTCR-P AND CTCR

There will be a couple of free tapes from the Hitler's Magic Business Box for the first correct answerer of the day each month. You can try telling all which tapes you'll like — you never know, we may have them.

And you don't have to boil up your dragon skin—
you can buy dried dragon scales at any good Chinese
medicine store or online.

1. Lights needed in this movie? (3,4,5)
 2. Sausie the speaking clock's favourite game! (3,7,5)
 3. Continue a question about marine animals (3,3)
 4. size 2
 5. Fragman not as fast without one on? (7)
 6. Applesauce with cottage? (7)
 7. Is half breed turned into盗贼? (3,6)
 8. Invasion by young math! (1,1,6)
 9. Someone has snatched over plus added to eight hand gear! (8,4)
 10. For you get angry addled! (4)
 11. pie 8
 12. Do not pass go! Have exclusive rights to the heavens. (3,6)
 13. Please check square round for young Clark Kent. (2,2)

Four More Commands

P.D Smith resurrects, interrogates, pinpoints and normalises his disc files.

THIS program adds four extra commands to DragonSuperDOS: RETRIEVE, INFO, DETAILS and DOB.

RETRIEVE allows you to recover a file that you have killed, as long as the disk space used by this file has not since been written to. Unlike most other retrieve routines I have seen, this command flags all the sectors used in a file as being used, most other routines just reset the flag in the directory entry. The problem with this is that if you save another file after retrieving one, the saved file may overwrite the retrieved one, since the DOS does not know which sectors are used by the retrieved file.

To use this command type RETRIEVE "filename" where the file name is in the standard DOS format as in for example KILL, after entering a RETRIEVE command several things could occur:

If you could get an error, PE means that an "unlinked" file with the same name exists, but means that no linked file with the same name can be found. LD means that some sectors used by the requested file have since been used by another file, and the file cannot be recovered.

If NO appears, the recovery has been carried out successfully.

If the message "L0NGER THAN 32K" appears, this means that the file could have more than one directory entry. It is impossible to be sure if a file has been killed, also so you are requested to say whether the displayed length was the original length of the file, enter Y or N, the displayed length is modulus 65536 (as a length of 32767 is displayed as 1) so you may need a calculator if the file was very long.

INFO displays information about the requested file, the syntax is as in RETRIEVE, ie `INFO "filename"`. The file type is then displayed, DATABASE or BIN for data, BASIC or binary respectively, then if the file is a binary one, the start address, length and execution address are displayed, as below:

BIN 1ST 0004 LM 0020 EX 10000

Here the length is 0020 bytes, the start address is 1004 and the execution address is 10000.

DETAILS displays how the file is stored on disc, listing ALL the sectors the file uses. Usually programs to do this only print the sectors which are recorded in the first directory entry, while long programs or programs on full discs may occupy up to even more directory entries. The output of this command will be similar to that below:

7 TO 8-4
28 TO 34-28
18-2 TO 15-14

This means that the file occupies sectors from track 7 sector 8 to track 8 sector 4 and so on. This is on a double sided drive, the routine will adjust itself for either single or double sided drives, having respectively 16 and 32 sectors per track. The syntax for DETAILS is again DETAILS "filename".

DOB simply removes these extra commands so that you can load a machine code program which will overwrite the routines, though otherwise this will cause all standard DOS commands to stop working. To recover the extra commands if the

routines have not been overwritten enter `BASIC 31800`.

Note 1: Retrieve does not backup the directory to track 10, so if you find that the file has been refreshed wrongly by you getting the file length wrong, just copy the backup directory to track 10 using SGLOAD and SGSAVE.

Note 2: The default file type for all the above commands is BASIC.

To use these extra commands, enter the hex loader and use this to enter the machine code. The machine code occupies addresses 34800 to 32700. To save the code on disc enter `SAVE "DISK.COM"`, 34800,32700,34800, and it is in 16 bit type BASIC (1605). If you are loading the program from disc remember to enter `CLEAR 32700` first.

Just a word of warning, before trying out the program remember to make a backup of the trial disc, first since any error in the code could cause you to lose all your programs on the disc.

Because of this note the hex loader has a more sophisticated checksum than is normally used, which detects transposition of bytes which the normal loader doesn't, so using a normal loader to enter the code will always give you a checksum error.

If you don't want to enter the code yourself we'll be pleased to send you a copy of the program on disc (40K in size) and this will also include any further commands I have since added. My name and address are: P.D. Smith, University Hall, Birchwood Road, Penyfan, Cardiff, CF2 7RL.

10 REM HEX LOADER

20 CLEAR 2000,31799

30 INPUT "START" \$1\$

40 INPUT "END" \$2\$

50 FOR J=ST TO ED STEP 8

60 PRINT USING "#00000000" # \$2\$

70 INPUT AB

80 CDRD

90 FOR R=1 TO LEN(A\$)

316480	1	0EB7A9F74-BE812B	=	1816	316480	1	5FF7F9BA09F1002B	=	18459
316481	1	0F7F475B867EF110	=	1902	316481	1	182568200000000000000000	=	754
316482	1	0FB128854816E89007	=	959	316482	1	265F80480000000000000000	=	738
316484	1	0FA0A2007B51697M1	=	873	316484	1	182568000000000000000000	=	694
316485	1	24BE01208F7F4795	=	1341	316485	1	26455A26F720007C	=	915
316488	1	7B9E8FB21203974482	=	691	316488	1	7F7BF67F9B1C46673	=	963
316490	1	0A9F278408E024600	=	6779	316490	1	0D05487E7EAE06468	=	1894
316496	1	35B26E9F7FA90104	=	931	316496	1	58C64803095561eAB	=	1883
316498	1	24F43261987F907E	=	1178	316498	1	608F7FA437F7F4994a	=	1364
316502	1	046000700C14B1B	=	895	316502	1	7F7BF7779C7F7FA03	=	1203
316509	1	26226E89865B97E8	=	1181	316509	1	BD7C2016268289F73	=	770

31776	1	ZFA5F-67F-7FB0ZC2D	=	1342	32224	1	387A7FAC220E3V8U	=	1242
31794	1	182682802397F-ZFA5F	=	1880	32232	1	78880182080C8877F	=	1096
31792	1	ZF-7F-7F-7F-7F-7F-7F	=	1093	32240	1	78F0460280E8048E6	=	1807
31800	1	C82M18268138B7F-7F	=	974	32248	1	854777F97C61F30C2	=	1134
31808	1	TD46880588182781	=	448	32256	1	865A1F81F588487F	=	1283
31816	1	31707F940889C684	=	338	32264	1	882818288888887F	=	873
31824	1	F-7F-7F-2888828882C6	=	782	32272	1	8D46884424648287	=	972
31832	1	87F-7F-7F-24183888	=	873	32280	1	880488443888877F	=	873
31840	1	ZFA3A0YH-C8221M28	=	863	32288	1	98E881F7D7F-7A8888	=	1214
31848	1	B132468258F-7FA805	=	948	32296	1	9731603884188878	=	875
31856	1	1886881A8888182788	=	478	32304	1	988802888888887F	=	1897
31864	1	8887-7F-7F-7F-7F-7F	=	1264	32312	1	987088018288887F	=	877
31872	1	ZF-7F-188888888888	=	881	32320	1	F-7F-7F-7F-7F-7F	=	1888
31880	1	ZF7884687777FA61F	=	1155	32328	1	747F-7F-7F-7F-7F-7F	=	1275
31888	1	3884564458445818	=	513	32336	1	A68485288778888888	=	888
31896	1	8E7F-88A4A57D7F-A5	=	1192	32344	1	8888028888888888	=	673
31904	1	2788A34802887F-A842	=	849	32352	1	34824F780957488888	=	858
31912	1	A88888887887F-A818	=	761	32360	1	88854-88854-88854	=	1185
31920	1	27888C7A74530417A	=	794	32368	1	957A8758888888888888	=	543
31928	1	ZFA22638787F-7F	=	1126	32376	1	9C798825848888888888	=	1183
31936	1	8887D7F-A8888888887F	=	1271	32384	1	9584887F-7F-7A8888	=	1114
31944	1	AB18887F-7F-7F-7F-7F	=	1234	32392	1	24F13281-7F-7F-7F-7F	=	962
31952	1	288182888888887F-7F	=	773	32400	1	8888887F-7F-7F-7F-7F	=	1174
31960	1	288587D7F-7F-7F-7F-7F	=	695	32408	1	8218887F-7F-7F-7F-7F	=	1283
31968	1	9788L7F-7F-7F-7F-7F	=	1895	32416	1	88182888888888888888	=	878
31976	1	AB182488888888888888	=	1882	32424	1	84888288888888888888	=	1887
31984	1	28818288888888888888	=	735	32432	1	84888188788888888888	=	1874
31992	1	88818288888888888888	=	1841	32440	1	87888128888888888888	=	1382
32000	1	8889885887F-7F-7F	=	1393	32448	1	81203894241888888888	=	878
32008	1	98888888888888888888	=	1121	32456	1	84874888888888888888	=	417
32016	1	88788888888888888888	=	1292	32464	1	89287482888888888888	=	642
32024	1	28815718288888888888	=	553	32472	1	84472888888888888888	=	1718
32032	1	8888737F-7F-7F-7F	=	1386	32480	1	888888737F-7F-7F-7F	=	687
32040	1	8888887F-7F-7F-7F-7F	=	1234	32488	1	88888888888888888888	=	738
32048	1	ZFA8887F-7F-7F-7F-7F	=	991	32496	1	88888888888888888888	=	637
32056	1	8814C78887988888888	=	821	32504	1	88888888888888888888	=	621
32064	1	8F-877F-7F-7F-7F-7F	=	1428	32512	1	84874888888888888888	=	1881
32072	1	98888888888888888888	=	439	32520	1	84874888888888888888	=	513
32080	1	7F-AB1788888888888888	=	1193	32528	1	84888888888888888888	=	729
32088	1	7F-AB1788888888888888	=	871	32536	1	84874888888888888888	=	720
32096	1	88888888888888888888	=	872	32544	1	84888888888888888888	=	711
32104	1	288888117C7F-7F-7F	=	1225	32552	1	84888888888888888888	=	703
32112	1	987A7F-7F-7F-7F-7F	=	1235	32560	1	88888888888888888888	=	1825
32120	1	88888888888888888888	=	1383	32568	1	84888888888888888888	=	671
32128	1	18268128888888888888	=	881	32576	1	84888888888888888888	=	753
32136	1	88888888888888888888	=	1269	32584	1	84874888888888888888	=	627
32144	1	88888888888888888888	=	661	32592	1	84888888888888888888	=	673
32152	1	28888811888888888888	=	871	32599	1	88888888888888888888	=	757
32160	1	27888888888888888888	=	967	32608	1	88888888888888888888	=	1181
32168	1	877F-7F-7F-7F-7F-7F	=	1164	32616	1	84888888888888888888	=	701
32176	1	88888888888888888888	=	1162	32624	1	84888888888888888888	=	651
32184	1	AB818278888888888888	=	1168	32632	1	84888888888888888888	=	943
32192	1	18888788888888888888	=	1216	32640	1	84888888888888888888	=	971
32200	1	44888888888888888888	=	948	32648	1	78888870788888888888	=	1267
32208	1	88854488888888888888	=	929	32656	1	81203894241888888888	=	281
32216	1	957A8888888888888888	=	897					

Primesearch revisited

Paul Wieden investigates a subject of Prime concern

DEAR HANS, I don't think I'd be sending you another program so soon, but here we go. This program is a utility type program which determines whether any number within a certain range is prime or not, hopefully interestingly.

Regrettably Gordon Lee's companion will be dead of his "Primesearch" puzzle. This involves some fairly lengthy computing but most time is spent, needlessly, in determining whether a number is prime; the same numbers would be tested thousands of times, surely there must be an easier and quicker way.

Listing One

```
10 DATA 1,T,11,13,17,19,23,29,31,37,41,43,47,
23,53,59,61,67,71,73,77,79,83,89,91,97
20 DATA 101,103,107,109,113,119,121,127,
131,133,137,139,143,149,151,157,161,163,
167,169,173,179,181,187,191,193,197,199
30 DATA 203,209,211,217,221,223,227,229,
233,239,241,247,251,253,257,259,263,269,
271,277,281,283,287,289,293,299
40 ERROR GOTO 300
50 POKER&HFFD9,0
60 DIM A$100
70 Q5=“DATA20”
80 CREATE Q5,240
90 FOR I=1 TO 60
100 READ Z5
110 R$H=Z5
120 Z5=STRING$(3-LEN(Z5),”0”)+Z5
130 FWRITE Q5,FROM 0-(I)*3,FOR 3,Z5
140 NEXT I
150 KMS=“PRIMEST”
160 CREATE KMS,304*80
170 FOR L=0 TO 333
180 A1$=
190 FOR K=1 TO 80
200 H=L*200+VAL(R$K)
210 PRINT H
220 IF INKEY$=“F” OR “P” THEN POKEA1$,
FD8,0 ELSE IF H=“P” THEN POKEAHFFD9,0
230 GOSUB 290
240 NEXT K
250 PRINTA1$
260 FWRITE KMS,FROM L*80,FOR 80:A1$=“
270 NEXT L
280 POKEAHFFD9,0:STOP
290 FOR F=0 TO SQRT(H)+.5 STEP .2
300 IF H=F*INT(H/F) THEN A1$=A1$+“P”:
RETURN
310 NEXT F
320 A1$=A1$+“T”:RETURN
330 POKEAHFFD9,0:PRINTERR:ERL:STOP
```

And so there is with these two listings. Users without disc drives will be able to easily modify them to test a range of numbers, say, 1 to about 10,000. Single disc drive owners will be able to test a range of numbers, say, 1 to slightly over 500,000 whereas those who own computers will be able to test a range of numbers, say, 1 to in excess of 1,000,000. In all cases, these ranges may be altered or even mixed but the higher the number, then obviously the longer listing one will take to run. Listing one, as it stands, does take several hours to run. Disc drive owners particularly will

never regret this small price to pay as they will reap the benefit considerably.

In testing alone, lines 68-116 allow for the data statements to be read, placed into FD array and later to FWFHLL them onto disc. Lines 140-200 use those numbers in FD to build up a prime number catalogue. By then every successive prime numbers apart from 2 and 3 will be even, apart from 5 cannot be divisible by 3 and apart from 5 cannot end in 0 or 5. The numbers in the data statements therefore stand the best possible chance of being prime. Line 200 calculates the next value (n) to be tested for primeness. In the subroutine (lines 290-300) and ends at A1\$=“T” if prime or “0” if composite. When A1\$ is 80 characters long then it is PRINTEN to disc (line 260). Lines 40-45 with line 300 are used in case of errors. Line 50 increases speed powerfully should not be used if your machine can’t handle it but if it can then line 200 will be found most useful for interrupting it to “see” how things are progressing.

Wear and tear

Listing two is a refinement system which determines whether the number inputted is prime or not. This may be used as it stands or used in conjunction with your own programs. Lines 620-680 FREAD what is stored in the first 24 addresses of FDs on disc and place them on board computer in A1\$ array. This is done to have wear and tear on the disc drive, give an instant response and utilise memory which would otherwise be unused. Line 690 clears string space for this purpose and also for storing information. FREAD is from DATA20 file (lines 270-300).

You are then asked to enter your number in line 690. Line 690, assuming you have passed several elementary checks in the preceding lines, calculates the location of the address (divided by 200) and stores the remainder. This remainder is searched for in FD array (lines 670-680) and its position noted. The relative address is looked up line 700 in FD0 and copied A1\$. Line 700 looks up the required position in A1\$ and adds this POS pointer to 101. On this (line 700) control either goes to line 750 or 760, where you are told whether your number is prime or not.

These two programs came about as a direct result of Gordon Lee’s “Primesearch” puzzle. Owners of disc drives will have no problem in “listing” all possible numbers up to 500,000. Unfortunately I only have a single drive and had to make do with all numbers up to 500,000 except six digit numbers starting with an even number. (Competitors will probably know what I am talking about.) Whether you are going to use this as it is or in your own pro-

gram, be it 'PrimeMaster' or whatever; I hope you get some usefulness out this and maybe a little fun too.

Listing two

```
880 CLEAR 3495
880 DIM RM80,A1$33
880 NMB?"PRIME?""
880 FOR I=1 TO 34
880 FLREAD NMB,FROM I-1*80,FOR R1$75
880 A$80-I)*85
880 NEXT I
880 FOR I=1 TO 40
880 FLREAD "DATA10/DAT",FROM I-1*80,
FOR R1$8
880 NEXT I
880 CLS
880 INPUT"ENTER NUMBER":N
```

If you experience difficulty in adapting the ranges, etc. and would like some help then send an e-mail to: Summerset@compuserve.com.

Address: Norton Under Eaves, Glos. GL12 1QJ. Please state requirement and the particular system you have.

```
880 IF N$100$="" THEN GOTO 620
880 IF N=2 OR N=3 OR N=5 THEN GOSUB
880 620:630:635
880 IF N=MINTHREE OR N=MINTHREE
880 OR N=MINTHREE THEN GOSUB TRM:GOTO 620
880 RM=NINTHREE$RS-N-1*80+30)
880 670 FOR I=1 TO 80
880 IF VAL(RM)=I-N THEN GOTO 700
880 NEXT I
880 IF N>1000 THEN A1$=A$RR0:GOTO 720
720 FLREAD RMS,FROM R1$80,FOR I,A1$,
720 P=VAL(RMS,I,1)
720 ON VAL(P)=1 GOSUB 750,760
720 PRINT"THIS NUMBER IS NOT PRIME":RETURN
750 PRINT"THIS NUMBER IS PRIME":RETURN
```

Dragonsoft

New software for review should be sent to Dragon User,
49 Almonstra Road, Hounslow, Middlesex TW5 4HP.

Draw what you like, but draw your own conclusions

Program: Picture Master
Supplier: John Penn
Price: £50.00

THERE has been a surge in the number of high quality utilities recently. However there have been surprisingly few CAD programs, and what there has been has often disappeared into obscurity. David Makin's Picture Master marketed by John Penn Discount Software, is one such program.

(Post, stop, pause and about, 'You make it sound as though Picture Master is destined for obscurity — which we hope it isn't, complaints about the instructions notwithstanding. I'm supposed to tell these things, not rewrite them. A CAD program is one which is dedicated to a technical/design function, usually mechanical or engineering. Other we have termed a non-dedicated design, or graphics, package. This mistake is becoming increasingly commonplace. — Ed.)

Picture Master allows you to design, and manipulate PCMCIA graphics in a variety of ways, using either the cursor keys or a joystick.

Lines are drawn by a cursor which appears either as a dot or a cross, which moves both horizontally and vertically. As the program loads you will begin to see an example of the

graphics. Picture Master can produce the screen dump which should appear alongside this review is not high quality, but shows you what effects can be produced.

Once the program loads you can either run it, print the instructions to a printer or read them on screen to a musical accompaniment from the author's Music Master 2. The program offers green, yellow, blue, red, buff, cyan, orange and magenta as well as black

areas in any of the foreground colours.

There is always the risk of losing your creation with a graphics program. As well as being able to load and save onto tape, you can store pictures in one of eight available locations. The GET and PUT commands are particularly useful here and allow graphics to be stored and recalled anywhere on the screen, either in their original form or inverted. Stored areas can also be stret-

ched upside-down.

Overall, the only drawback to Picture Master is that the instructions are far too complex. Those who know how to use this kind of program may not think so, but the average user is bound to feel insecure. Given a simpler or clearer instruction sheet the program would be perfect for its task.

One thing which I did notice was the ability to print bid on the screen without first having to clean it. It would be better if the user could enter text from the keyboard — instead, you must draw it with the MACHINERY command to help you.

Accompanying Picture Master is a screen dump program which can be altered to suit almost every printer. First you must enter the appropriate codes for your printer, similarly to Electronic Author's COPIER program.

Picture-Maker's sheer power is surprising. I cannot explain everything it is capable of. It is the most sophisticated graphics program I have seen. If you can master the rather complex instructions, you should have no trouble creating your own graphics.

Donald Morrison

Once the program loads you can either run it, print the instructions, or read them on screen to a musical accompaniment.

and white in screen 1. The background and foreground are easily changeable. Pressing Alt moves you into SCROLLIN\$ graphics.

Picture Master has a variety of brushes, some of recyclable in the instruction sheet, but including Paint, Paint+, Paint-, Paint+, Line and others. The choice seems limited to me, and perhaps David Makin could have been more adventurous here.

The program can also draw circles, boxes and lines independently, and can FILL

circles up to three times their original size.

One of the most important features is the MAGNIFY command. This magnifies the area of the screen where the cursor is situated many times over allowing you to produce very detailed graphics more easily.

Should you find that you have started your drawing too high or low on the screen, you can scroll the screen contents left, right, up or down. A fascinating feature is the ability to MIRROR graphics using RL and also to turn the view



Sound house

Wayne Smithson takes a sound sample.

All the name suggests, this program is a sound digitiser (with trilly bits). It lets you sample sounds using the cassette port — this does not necessarily mean that you have to sample from a cassette recorder. You can sample sounds using a microphone or by connecting other computers to the Dragon.

Sounds are digitised and stored in memory; you can digitise more than one sound by altering the memory size (pre-planned later). Once you have the sound you can then speed it up or slow it down and save or load it elsewhere. An extra facility of this program is an 'analyzer' section. This lets you play music tapes and displays coloured bars counting about accordingly. Yes, Your Dragon can groove.

First of all type in listing two, this is the basic controller program that is used for disk or cassette MD, and save that to either cassette, whichever you're using, as "SOUNDHOUSE". Now make the changes for the cassette version. The changes about with the PEEKs at lines 102 and 103 are for finding the start and end addresses of files being saved or loaded. The basic controller also loads in the machine code which lives at address 3000 to 4000 inclusive.

Once that has been typed in and saved, run the program, and type in listing two, the file is loaded. From line 100 comments, you must type in the data contained in listing three — forget about the numbers before the colon(:). The first data line would be there:

```
100 DATA 10,POKE,REF,0,FF,14,50,B8  
101 DATA FF,20,0A,0B,0C,FF,20,7E,0C
```

When all the data has been typed in, it would be a good idea to save it onto disk or a separate cassette just in case it doesn't work when you run it. Once the data is typed in and the program saved, RUN it. You will see the numbers appearing on the screen as they are POKEd into memory.

Providing you have saved the basic file loader with all its data, you may now load the machine code by typing POKE3000? This is the point at which you will press F5 if there are any errors in your data or not. If you are greeted with a blank screen or flashing bars or funny noises then there is an error in your data. If you are greeted with a

checkbox then you've typed in the wrong thing. What you should get is a menu on screen listing the various options available to you. Pressing either BREAK, L or S should return you back to Basic at which point you should save the code as SHCODE.

```
SAVE?"SHCODE",307,4094,3072 :RE
```

```
DISC
```

```
LOAD?"SHCODE",307,4094,3072 :RE
```

cassettes, to be saved on tape after the Basic controller — listing one.

To use Soundhouse then, from disc just type RUN?"SHCODE", then cassette, LOAD?"SHCODE", then RUN. Alternatively you can save the basic bit using the audience programme in a plain issue of DU and use LOAD? to load the lot in.

And now, on to actually using Soundhouse, firstly make sure that the ear and record sockets are connected between the Dragon and your cassette recorder and unplug the headphones. I will take each option in turn and describe what they do.

A: GO TO ANALYZER. This passes control to the pretty-looking bars which used no use whatsoever but who cares? It's fun. Play any tape, the sound will come from the TV and the coloured bars will move up and down with the music. As always, competency assesses, but it's nice to watch. Pressing the BREAK key will return you to the main menu.

D: CAPTURE SOUND, guess what this does? Yes, you guessed it. Sound is sampled from the cassette port and stored in memory between \$M001 and \$M02 shown at the bottom of the screen. The speed of sampling is set by SPEED value of 900. A speed of 900 is a good speed to use. Playing music tapes tends to bring up all noise result in that music being digitised. The quality from samples is pretty because the sampler picks up the background noise but you can definitely hear your Dragon playing back the Eurotunes or Status Quo. To digitise your own voice, it is best to do it directly using a microphone. To do this, just plug your microphone into the PBCard socket, make sure the ear socket is connected and then use a phono in the recorder. You need to press PLAT and RECORDER down on the cassette recorder and to do that without having a tape in you

will have to push the switch of the back of HIS of the recorder in with your finger. You can then talk into the microphone and it will be instantly played through the TV and digitised. You can also digitise sounds made by other computers (Amiga/Modem 64 is best) by connecting the audio out and ground from the C64's audio socket straight into the ear socket on the Dragon. I would only advise doing this if you know what you are doing. (Editor, and thanks go to Dave Gibbons and Mark Parry for letting me do that). The effects are much better though.

P: PLAYBACK SOUND (BASIC). This plays back your digitised sound in the speed set by SPEED. If you alter the speed after digitising, your Status Quo can sound like the Smurfs or a record at half speed. You can play back part of your sample by altering the memory boundaries (\$M01 and \$M02). Data is not lost by moving these

C: PLAYBACK SOUND (CIRCULAR). As for P but plays the sample over and over again until you HOLD DOWN any key. You may have to hold the key down for quite a while for it to stop.

S: DOWNLOAD SAMPLED SOUND. These speak for themselves and save the sampled sound between the \$M01 and \$M02 addresses inclusive. Loaded samples are played in memory where they were originally saved from.

R: RESET MEMORY TO FULL SIZE. This places the ADDRESS BH070 (8000) into \$M01 and the address BH07FF (2000) into \$M02 to maximise the amount of memory available for samples.

ARROW KEYS: ALTER MEMORY SIZE. The arrow keys move the memory boundaries around. Using this feature allows you to pick certain parts of a sample like a word for instance. Rightleft arrows control \$M02 and updown arrows control \$M01. Pressing the SHIFT key will speed things up considerably.

< >: ALTER DIGITIZER SPEED. Obviously pressing either < or > (shift key not needed) will alter the SPEED of digitising or playback. With this you can find out what you sound like at 70 rpm or at 300 rpm.

```
100 PRINT "POKE 3,1 : PAUSE 10 : LOAD" ;  
101 *****  
201 * SOUNHOUSE SOUND SAMPLER *  
202 * (C) 1987 WAYNE SMITHSON *  
203 * *****  
204 PH00D:PCLEAR1:CLEAR1$9,5999:  
AUDI0ON:POKE251,$H17:POKE252,$H7  
205 *****  
206 0 :POKE253,$H7F:POKE254,$HFF:LOAD  
207 *REC0DE.BIN":CLOSE  
208 TD:POKE$H0605,1:POKE$H0799:NEXT  
209 ED:EEEC3072  
210 EE:EEFB(1,255)=1:THSH110:EE:SHFF  
211 EE(255)=2:THSH150  
212 CLS:PRINT:INPUT"SAVE NAME":H
```

```

9
120 S=PEEK(251)*256+PEEK(252):I=-
PEEK(253)*256+PEEK(254):PRINT:PR
1 INT:PRINT"START ADDRESS:";S:TAB(2
5):MEMS1$,": END ADDRESS:";I:TAB
125:MEMS2$(I),": MEMORY USED:";I-S
:TAB(25):MEMS1$(I-S)
130 SAVENS"+.DIG":S,I,359:CLOSE
140 GOTOTO
150 CLS:PRINT:INPUT"LOAD NAME";N
2
160 LOADNS"+.DIG":CLOSE
170 POKE251,PEEK(1618):POKE252,P
EEK(1619):I=PEEK(251)*256+PEEK(2
52):S=2+PEEK(1620)*256+PEEK(1621
)-1:POKE253,INT(I/256):POKE254,S
3
10 'HEX LOADER FOR SOUNDHOUSE
20 '
30 !PCLEAR$4:CLS:PRINT#234,"ADDRES
S$","VALUE"
40 FORM=3072TO4096
50 READ#1:POKE1,VAL("A$"+A$)
50 PRINT#232,N,:PRINT#234,VAL(I"#
H"+A$)
70 NEXT#1
80 END
90 'PUT DATA HERE
100 DATA ----

```

```

-INT(I/256)*256
180 GOTOTO
190 '
200 'TYPE "GOTOTO" IF AN ERROR
210 'OCCURS IN THE PROGRAM.
CHANGES FOR CASSETTE VERSION
60 PHD$=POKE253:CLEAR100,5999:
AUDIOM:POKE251,SH17:POKE252,SH17
61 POKE253,SH17F:POKE254,SHFF:CLDA
DH$=SHCODE$"
70 END
130 CSAVE#15,S,E,359
180 CLOAD#15
170 POKE251,PEEK(487):POKE252,PE
EK(488):POKE253,PEEK(126):POKE25
4,PEEK(127)

OC2A=04 C4 OF CB 90 C1 39 23 02
OCFC=CB 07 35 BD BA 77 8E 0E 8B
OCFC=BD 90 E5 BD 90 E5 8E 04 00
OD05+A6 84 84 8F A7 BD CC 05 E0
OD0E=26 F5 BD 83 BD 80 06 81 03
OB17+10 27 00 D5 B1 41 10 27 FF
OB20+00 B1 44 27 5C B1 50 10 27
OB29+00 BB B1 43 10 27 00 7D B1
OB32+33 10 27 00 B3 B1 4C 10 27
OB38+00 B1 B1 52 10 27 01 3C B1
OB44+2E 10 27 00 AE B1 2C 10 27
OB4D+00 B9 B1 08 10 27 00 C7 B1
OB56+09 10 27 00 E7 B1 04 10 27
OB5F+01 11 B1 0E 10 27 00 F2 B1
OB69+15 10 27 00 A5 B1 5D 10 27
OB71+00 C4 B1 5B 10 27 00 EE B1
OB7A+2F 10 27 00 B0 20 91 9E FB
OB83+C5 08 07 E7 8E FF 20 46 56
OB8C+C5 01 27 04 10 21 FF FC 06
OB95+08 44 26 FB 0A E7 26 EA E7
OB9E+00 F7 05 FF 9C FD 25 00 96
OB3F+B1 03 10 27 00 B1 8E 04 00
OB4B+CE 10 00 8E 0F 97 E7 13 34
OB51+10 A6 C4 C6 20 3D 30 BB BB
OB5A+FF 20 97 EB 8E FF 20 9A EB
OB62+94 01 27 00 9E E7 A7 8B E0
OB6C+A6 C4 27 10 6A C4 20 OC BB
OB75+B0 A7 B4 A6 C4 B1 0F 24 02
OB7E+6C C4 23 10 9E E7 BB 10 BA
OB87+B0 97 E7 33 41 30 01 8C 04
OB90+20 23 BB 20 A7 BB 05 E0 9F
OB99+BB 8E OF E0 26 FB BB 3A ED
OCAA+B1 95 FC BB 34 ED 84 8E OF
OCAB+E9 95 FD BD 28 ED B1 95 FE
OCB4+BD 25 ED B1 BD FD 93 FB 07
OCB9+E7 8E OF F2 BD 18 ED B1 95
OCCE+E7 85 12 ED B1 8E OF FB 86
OCDF+00 95 BB 04 ED 84 8E OF DE
OCDB+7E 90 E5 34 02 44 44 44 44
OCDE+00 30 B1 39 23 02 BB 07 35

```

0E53*00	00	10	30	FB	25	04	00	FB	0F2A*00	41	56	45	20	53	41	40	50
0E5B*10	00	FB	24	00	C3	00	01	00	0F33*4C	45	44	20	53	47	55	46	44
0E64*FB	20	C1	DC	FB	03	00	00	10	0F3C*00	4C	34	20	4C	47	41	44	20
0E6D*03	17	70	22	F1	0C	FB	10	83	0F45*53	41	40	50	4C	45	44	20	53
0E76*17	70	23	E9	83	00	01	20	54	0F4E*6F	53	4E	44	00	52	3A	20	52
0E7F*8E	17	70	9F	FB	00	7F	FF	9F	0F57*43	53	45	54	20	40	45	40	4F
0E88*FD	7E	00	10	53	47	55	4E	44	0F60*52	59	20	54	4F	20	46	55	4C
0E91*4E	4F	05	53	45	29	53	4F	55	0F63*4C	20	53	49	54	45	00	00	41
0E94*4E	44	20	53	41	40	50	4C	45	0F72*52	53	4F	57	20	48	45	59	53
0EAC*52	20	20	43	29	31	29	39	37	0F7B*3A	20	41	4C	54	45	52	20	4D
0EAD*20	20	20	57	52	49	54	54	45	0F84*45	40	4F	52	59	20	53	49	54
0EB5*4E	20	42	59	3A	20	57	41	59	0F8D*45	00	30	38	34	20	41	4C	34
0EB6*4E	45	20	53	40	45	54	48	53	0F96*45	52	20	44	49	47	49	54	49
0EC7*4F	4E	00	00	41	3A	20	47	4F	0F97*5A	45	52	20	53	50	45	45	44
0ED6*20	54	4F	20	41	4E	41	4C	49	0FAB*00	42	52	45	41	48	3A	20	43
0ED9*5A	45	52	00	44	3A	20	44	49	0FBE*5B	49	54	20	50	52	4F	47	52
0EE2*47	49	54	49	54	45	20	53	4F	0F8A*41	40	00	00	53	54	41	52	54
0EBB*55	46	44	00	50	3A	20	50	4C	0FC3*20	20	20	20	45	46	44	20	
0EF4*41	59	42	41	43	48	20	53	4F	0FDD*20	20	20	20	4C	45	47	24	
0DFB*55	46	44	20	28	53	49	4E	47	0F85*48	20	20	20	53	50	45	44	
0F06*4C	45	29	00	43	3A	20	50	4C	0FBE*00	24	30	30	30	30	20	20	20
0F0F*41	59	42	41	43	48	20	53	4F	0F7E*20	24	30	30	39	39	20	20	20
0F18*55	46	44	20	28	43	49	52	43	0F70*20	24	30	30	30	20	20	20	20
0F21*55	4C	41	52	29	00	53	34	20	0FF9*20	24	30	30	00	00	00	00	00

1770	*****	*****	*****	*****	*****	*****	*****	*****	0E99	3408	100P	FROM	0
1770	*	SEARCHED	SEARCHED	22/7/41	*	SEARCHED	SEARCHED	SEARCHED	0E91	3404	LSD	,0	
1770	*	ICL	SEARCHED	SEARCHED	SEARCHED	SEARCHED	SEARCHED	SEARCHED	0E92	3412	LSD	,0	
1770	*	*	*	*	*	*	*	*	0E93	3400	END		
1770	*	*	*	*	*	*	*	*	0E97	3408	LSD	,0,0	
0000	0000	0000	0000	0000	0000	0000	0000	0000	0E98	3400	LSD	0,0,0	
0000	0000	0000	0000	0000	0000	0000	0000	0000	0E99	3408	LSD	0,0,0	
0000	0000	0000	0000	0000	0000	0000	0000	0000	0E9A	3408	LSD	0,0,0	
0000	0000	0000	0000	0000	0000	0000	0000	0000	0E9B	3400	AMPA	0,0	
0000	0000	0000	0000	0000	0000	0000	0000	0000	0E9C	3400	END		
0000	10000000	0000	0000	0000	0000	0000	0000	0000	0E9D	3400	LSD	0,0,0	
0001	0FFF	0000	0000	0000	0000	0000	0000	0000	0E9E	3400	LSD	0,0,0	
0001	LAND	0000	0000	0000	0000	0000	0000	0000	0E9F	3400	LSD	,0,0	
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9A	3400	END		
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9B	3400	AMPA	0,0	
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9C	3400	END		
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9D	3400	LSD	0,0,0	
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9E	3400	LSD	0,0,0	
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9F	3400	LSD	,0,0	
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9A	3400	END		
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9B	3400	AMPA	0,0	
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9C	3400	END		
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9D	3400	LSD	0,0,0	
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9E	3400	LSD	0,0,0	
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9F	3400	LSD	,0,0	
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9A	3400	END		
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9B	3400	AMPA	0,0	
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9C	3400	END		
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9D	3400	LSD	0,0,0	
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9E	3400	LSD	0,0,0	
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9F	3400	LSD	,0,0	
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9A	3400	END		
0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9B	3400	AMPA	0,0	
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0001	00000000	0000	00000000	0000	00000000	0000	00000000	0000	0E9D	3400	LSD	0,0,0	
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Expert's Arcade Arena

AM, the most fragrant of Autumn activities throughout the Dragon world, and with it brings a host of new titles, new names, and even more exciting, a new B.I.-part the services of whom you have for one month only, so enjoy and savor.

Stripped down to business, and indeed, the Expert, ladies and gentlemen, boys, girls and even the Doctor is proud to present the A-Z guide to Dragon arcade games so far released this year. So with no further ado, take it away...

CRAZY FOOT 200 (Orange Software) Released on the verge of 1988, and priced at £3.99, the Crazy Foots' destiny continues, this time offering a vast improvement. CrazyFoot 1, which reminded me of a program I once wrote on a Z8000. However, it has all changed, this time incorporating colour graphics, along with several other new additions.

You play (of course) to defeat the opposition line of robots or Human using three players, symbolized on the screen as being eleven multi-coloured men, who may only be moved in a horizontal line. This subsequently results in the game being one of strategy more than arcade, but none the worse for that.

This certainly offers a stark contrast to that of Laser Football, with a very cool contrasting price, easily justifying the outlay.

Track designer

BIG-OUT (Dragonfire Services) Not being in the enviable position of having a crystal ball, I am unable to comment on the games, or the time of writing, it has yet to be released. However, dusting off old notebooks, I am assured by Andrew Hill of Dragonfire that this is rapidly based upon Breakout, which was seemingly first released when computers first discovered the wheel. Will it survive the test of time? Only time will tell...

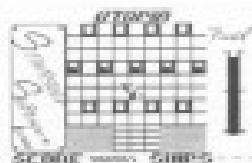
FORMULA ONE (Pacesetter) Priced at the London show in December 1987, but still worthy of mention, this version of Scacchetto has already overaken Speed Racer and looks poised to become one of the best all-round games produced for the Dragon.

On a split screen format, would-be Nigel Mansells have the option of racing either the computer or friend, along with having the additional option of being able to design his/her very own tracks, utilizing a separate program hidden on side B. Congratulations to Pacesetter on an exceptional game, which, incidentally is the first for the Dragon - I sincerely hope it isn't the last.

(Genuinely doesn't always pay...but...)

LUCIFER'S KNAFEDOM (Orange Software) Priced at £3.99, Lucifer's Kingdom, in my immortal opinion, deserves to be at

the top of any list which may find its way to Stora in forthcoming months. Comprised of detailed exciting graphics, the game's aim is to find and defeat the elusive Lucifer. Playing off-the-wall, eight sets of misleading aliens act as a speedy and amazingly never ending obstacle course, in which you must weave, dodge and generally blare to Who-gone-got-left. This tantalizingly addictive game should not be missed, acting as a much-needed stimulant over the cold, dark, evenings we almost spend us.



MANDRAGORE (Kuava Software) I once had a friend who believed the Dragon, as a games machine, was a shamisen. Looking back at the archives, it was hard to argue against that point.

However, one brief glimpse of Mandragore, available at only £4.99, would easily dispel any myths, as without a doubt, if that quality of software is maintained, the Dragon is set to meet any & be machine parity on the strength of it being a games machine.

You play the part of Mandragore an advanced robot, the aim of whom is to battle through two levels of mummies, traps



eagles, scorpions, and anything else one could possibly imagine.

On the basis of my brief glimpse, Kuava Software is definitely a name to watch out for.

SUPA, NICKA (Orange Software) Supa

Write to 'The Expert' at Dragon User
at Alexander House
Hounslow, Middlesex TW3 4EP

Have is predominantly based on the older but certainly not guides Materials, which many of you may have found to accompany your Dragon 50 upon purchasing it.

As you may have already gathered, I am not the most ardent fan of Materials and I am afraid this version does not inspire me enough to change my views.

For the record, your aim is to blast everything in sight to smithereens however, instead of inventing a more powerful 'boomer', the intrepid captain must, in my view, laboriously place primitive mines in the hope that an unsuspecting intruder should trigger them off, which in turn, creates more mines. I'm not sure, unsuprisingly, it succeeds.

Even with an 'economical' price tag of £2.99 I am only able to recommend this game to those who return Materials to the bend baring series Neighbours, and who require a varying version of old old theme if not an old plain.

UTOPIA (Pussey) Fresh from the clutch of Jonathan Cartwright, it has been said that this is very similar to the aforementioned Lucifer's Kingdom, although, whilst I find the basic elements of the game to be of a kind, the only other aspect of the game which I review as being similar is the fact that they're both truly excellent games, unsurpassed by any other in their field.

Your aim is to escape, as the title suggests, from the planet Utopia, and in doing so, escaping from the unique defence system, involving Kamikaze style space craft, amidst objects strewn on the planet's surface.

As already stated, priced at £5.49, this game carries my thorough recommendation, and indeed, rather than picking between Lucifer's Kingdom and this, I would venture to suggest you purchase both, as you are unlikely to find better.

Small but perfect

Quality comes before quantity, and that's certainly how the Dragon arcade scene looks at this present dragon in time. In order to keep the continuing stream of new releases coming, the firm message from the suppliers suggests that they urgently require more support. With the current quality of arcade games being disregarded, there are less who deserve it more.

My final message to you, my loyal friends, before sign-off into the void of the unknown, never to be seen again, is support them to support you. You (and your budget mates) have the golden opportunity to do so at the Arcadia Inset, Weston Super Mare, on Sunday December 4. In the humble words of the Poor Tops, 'Till we there...' Don't let that put you off, will you? After all, if you'll let me think of a shoddy without you, would it Good night.

Winners and Losers

The expanded version of 'halibut' numbers formed the basis of the June competition. 'What is the smallest starting number which will, while being halibuted, produce a maximum which exceeds one million?' was asked. The vital words in the question were 'The smallest starting number...', so those of you who did a quick calculation and worked backwards from 1,000,000 to arrive at 333,333 were well off the mark. All of the entries which attempted a 'work backwards' approach after using quite refined programming ended up becoming entangled in an ever-increasing tangle of diverging pathways. Unfortunately, while following any number to its conclusion in the normal manner is simplicity itself, attempting to trace that path backwards is virtually impossible.

The reason is not hard to find. Certain numbers can be formed from two possible generators, and on selecting one of these there are two paths which need to be followed. For example, working backwards from 11 we can go either 10 + 1 or 7. Infect, any number in the form of $2^k + 4$ where k is any positive integer will possess this disengagement. Consequently, we would need to reach such a number every six steps, after which we could continue in three, four separate paths, which will then have been reached before hand, and so on.

As an example of this type of approach the current year 1988 has been worked backwards for a few steps and it can be seen that after only nine iterations the final value has converged onto further accurate channels.

This was one occasion when the simplest method of approach proved to be the ideal method, that is, start at 1 and test each number in succession until the first is reached, which produces a maximum in excess of one million. The fact that there is no proved connection between any starting value and either its maximum or the number of steps taken to reach unity should have indicated that this was the best system.

John B. Knott of Waybridge ran an analysis on the results reached while the 1919 individual bird study was in progress and found that the minimum 10,000 occurred most frequently, in fact, 2,023 times during his work. This was equivalent to a frequency of over 30%, for in an excess of all numbers listed, 50% is said, is 70%. Following on from this idea, I have a check on all starting values up to ten thousand and the top ten masses are shown here. Because of the higher range of numbers under test, the relative frequency of 9525 has fallen from the figure just quoted, but this value is still well ahead of its nearest rival. Of course

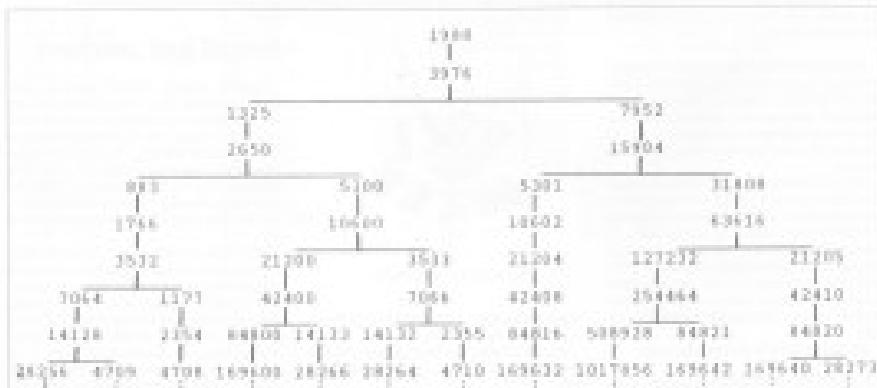
Every month
Diamond Line will
call all members and the company's customers

This percentage will continue to drop. The higher the range of numbers that are being tested.

This is clearly because once our starting value has exceeded 1000, this particular maximum can never again occur, so the frequency will never exceed the 15% shown in the table. Whether, by continuing to run the program and test values up to many millions, another higher scoring maximum exists is a matter for conjecture. If there is such a value, it will probably be in very high numbers in order to allow a sufficiently frequent 10 to succeed before the values being tested again pass that mark. Then, the whole procedure will start all over again.

If any readers have any ideas concerning the high frequency of 92/93 I will pass the information on to a future article. John also had an additional puzzle. This was the decipherment of a coded message. Only two readers managed to crack it, and they were those that formulated the code. Much destruction. D.J. Gray and P.J. Doyle. Well, this is just a short note, I ask myself? Anyways congratulations for spotting that there must have been an intermediate 'key' in the code, and in determining that this key was the words 'Dragon Lure'. (For another step in name? Oregon). User can be used to contact the publishers of the University.

Maximum	Frequency	Percentage				
1	9232	1579	+15.70%	11	14308	47
2	28364	187	+1.57%	12	8880	48
3	25594	143	+1.43%	13	65608	60
4	35856	92	+0.60%	14	2752	29
5	21688	87	-	15	64234	37
6	4372	71	-	16	68312	37
7	196966	69	-	17	343544	36
8	13120	67	-	18	41524	35
9	1276526	60	-	19	14550	33
10	6520	54	-	20	90528	37



Write: ADVENTURE

Pete Gorman finds the streets of London paved with misadventure

18 months ago, in the April 1988 issue of *Dragon* (see this column devoted in part to something which I termed "interactive fiction"). The idea was that people enjoyed up dates for adventure games that were based on fact, rather than fiction, and subsequently turned those ideas into what would become some pretty interesting games. One or two of my local acquaintances have said that they would like to hear more, so with the editor's kind permission:

We'll stick to big of the main themes, mainly stories from my college days and getting your facts right when writing an adventure game, but we'll be featuring quite as much science and science fiction adventures. We'll see. What we will be concentrating in the areas of London various incidents that took place upon there, and if you're going to be sending an adventure to Rainbird (for example) it would be well if you got all the facts about London correct, since they are basing the game from if you're sending your game to a company who'd never set foot in London, someone playing it would pull you up if you get something wrong.

Aims Mater

In our imaginary adventure you are a character who, in my fictional UCL (University College London), and whatever the compartment about the UCL, will look back last around. (Help!) You were the one who said "Robbin has a lot to answer for" half month, one does? was almost inevitably known only by his surname, which was Pogo. Pogo was a legend at college, and I guess a few of the incidents attributed to him did in fact happen to other people. That is too important. They could, and should, have happened to Pogo. What is important is that we get our settings right. For instance, if an incident took place on Tolka's Court Road, involving Bandits Bank, is there really a Bandits Bank there? There are, in fact, two of them, and the one in question is at the end of Tornister Place.

It transpired one night that our intruder here was cycling home (Pope cycled everywhere), and was feeling somewhat wildly owing to an over-indulgence in nocturnal farewells. Pope was in need of money, and came to a half-drunk state of mind. He came up with his card and attempted to insert it in the magic money machine, but alas for him the machine wasn't working. To his befuddled mind this must have seemed like a tremendous insult, and he smashed, savagely, for a brick to throw through the window like boulders, a hefty, solid sort of brick, ideal for smashing windows with. He flung it at the bank, but

made one unfortunate error: He forgot to eat go. The result of this was that both brick and Page suffered through the night, and I stayed up until the police arrived and helped him down. Hope, as an adventure, could give me another picture out of that awful

The second incident took place at the same spot. Here you need to know another fact or two about Tottenham Court Road. The bank is on one corner of a T-junction, and here there are two sets of traffic lights. Opposite one of these there are two telephones. Rarely working, but there they are. Again it was night time, again Pigott was cycling home, and again he'd been inebiating well. If not exactly in Cheshire Cat country, he was brought to a halt at one of



the seat of lights, and for once he needn't quite through them but decided to wait. A man got up alongside him, and there they waited together. And waited. And waited until the little devil that was whispering in poor Pidge's brain got the better of him and he got off his train. He leapt it carefully against the platform, went over to the car, and started an out-of-pocket robbery. The driver was naturally horrified by this, but old Pidge was a much bigger man than he simply had to be. The robbers and called fire police. By the time they arrived Pidge had had a fit of convulsions and was struggling to re-instate the hydro. The police found him lying down by the side of the car, attempting to hold them off by mouth. Once more however he failed miserably and once more those would pros got out and took another, return journey.

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Our final incident in our impromptu adventure on the streets of London, at least, the final one involving Pops, took place in Hackney, E8, not E7 or E9, but E8. That's where a party was going on, near the early hours of the morning, and the liquid had

been looking for quite some time. Pigeon the owner of the flat, who shall remain anonymous, disclosed that the one thing the bot needed to make it complete was a police crossing bollard, so that they could cross the busy road in safety during daylight. He failed to say at three o'clock in the morning there wasn't much traffic about, and as they sat to eat with an oil of black paint and one can of white paint, one each, to paint their very own zebra crossing. Unfortunately, one of the neighbours noticed this and didn't take it in quite the charitable measure in which it was intended. They called the police, but by this time they arrived the crossing was finished and Hope and owner were safely back inside. When the knock on the door came the same thing you don't do is open in case we're carrying two cans of paint, and saying 'It's a law cap, guy.'

[Get an Auto Z](#)

With so much scope for an adventure based on the streets of London I am surprised that there aren't more games written about it. If you're going to do one, why not yourself without a Z or some equivalent. You won't need to have Victoria station on the Northern Line of the underground, for example. You don't want Hengrave Heath south of the river Thames, or that sprawling hostility. The Spaniards being nobodies near the Heath. Hackney and Shoreditch aren't even London, not west, and if you're going to have a 99-lease-type escapade chomping up Big Ben you might like to have little Christopher's flag flying from Victoria Tower when parliament is adjourned, and so on.

"Underneath the arches" word the song, and the place really exists, at the base of Charing Cross station. Close by is an excellent place to start an adventure game, a pub known as The Dinerhouse Inn. This is much more than just a pub. It is possible the most well visited of all pubs during the tourist season. It is also kind of museum to the great fictional detective, with another stunning round of the Baker-street looking down at you from the west. Could be many an adventure lies hidden in this particular nook.

Silence details in advertisements always help to set the scene, so if you're going to include London Zoo as part of your advertisement it might help to say something about the atmosphere there. I am not a fan of zoos myself, but I have been visiting around the zoo, admiring the animals, and I've decided to make a point of it to a few of us all full of varieties of phenomena. Nearby was a group of three boys, looking like they had just escaped from a prison. I was examining one of the cages, started reading the little notice in front of it that was telling me all about its

occupants, when I burst out laughing. I pointed at the sign, my friend read it, and she too was overcome with mirth hysterical. The present in question used by the rather unfortunate name of the Cockless Pheasant, and although within the sign must have had a sense of humour, this bird, the Cockless/Pheasant, is apparently very difficult to breed in captivity. Hardly surprising really with a name like that, but we left the harassed gentleman to explain it to his parents. My parents saying nothing.

And of course, in those circumstances always make sure when young people are watching, I think they do it deliberately.

One last place that must be included in a London adventure is the famous Trajan's Column. Complete with Nelson's column, the lions guarding the place, and the fountains. Overlooking it all is the imposing image of the Trajan's Column, and in full operation when the place was crowded off and you can't go there in fear of your life. New Year's Eve saw us all congregating outside the fountain before going to a splash in the fountain to celebrate the New Year and ring their ringer's mattock. One year my cousin came down to London to join in the celebrations. He had

only recently turned 16, so perhaps his over-exuberance could be explained. He had, after all, spent the night in various bars. As midnight approached he climbed to the top of one of the fountains, and waved happily at the world as the New Year descended. When he got back home his mother asked him if he'd enjoyed himself. He replied that he had. He hadn't had time to think, replied his mother No, answered truthfully. He hadn't. Then, his mother wanted to know, what were you doing on top of that ***** fountain on the news on television? Caught out by modern technology, another trap for the adventurer in London.

Birthday card

So with a combination of facts and experience, it's not always that difficult to come up with good and original ideas for adventure parties. My own troubles of today, in fact, would have made an interesting enough cover. Buying a lottery ticket for grandmother would seem, on the face of it, an easy mission. Not so, dear reader, not so, especially when buses are

being diverted all over the place because of a road being closed, the weather decides that road transfers itself instantly from sunshine to rain, some places have closed early because of half-day closing while others remain open. Head that any selling stands are selling only those sort with rhymes so how is it makes you change even to look at them. To say nothing of knowing that one cannot leave the house before the post has arrived in case the hellhound next door decides to add to the collection of postmen buried in the back garden by pinching another one (and his post from under my very nose). Douglas Adams' Hitchhiker's Guide to the Galaxy man has co-produced a very successful adventure called *Bluesocracy*, based on the problems of dealing with such things as banks and airports. They are as caught compared to the problems of coping with traps to the postmen, dogs, buses, and other things.

Well, I hope this gives you a few ideas for adventures. Enough of ideas, though, we've neglected programming long enough, so back to that road trip around. Meanwhile, all this writing about terrors and events of long ago, I'm going to the pub!



COMING up in November of this year is an exciting new convention: *AdventureFest* for adventurers everywhere. It's an annual bash, and this is a sideways look at some of the happenings from last year.

The *Adventurer's Convention* was held at the Europe Gallery, part of Sutton Library on the 28th November 1988. It was apparently the second such convention, although I never heard anything about the first. As it was never promised such treats as talks on multi-user adventures, adventure creator programs and what the future holds for adventure parties, as well as demonstrations of various popular games throughout the day. What did happen? Read on...

Sutton bound

You know me, always game for a laugh, so when Sandra Shanks (then of the fanzines *Adventurer*, *Probe* and *Bookshaper*) later (but now moved on to great things in the adventure world) asked me if I was travelling down to Sutton for the conven-

tion I replied "of course". The original plan was for us to travel down separately on Friday and then meet up on Saturday somewhere near the Europe Gallery.



However, events were such that we ended up travelling down together, so, obvious to the last, I arranged a meeting with Sandra without telling Sandra anything

about it. The train journey was cold but otherwise uneventful, as ever I was eight at the price British Rail charge for cars of McEvans Express, so planned out several adventures and never only half an hour late getting into London Euston. I met British Rail's excuse, dead rapidly on the line of Chees, or some such nonsense.

On the pretext of showing Sandra my old university followed by the possibility of meeting some of my former colleagues if we went into a particular pub, we arrived at the Jockeye Roundabout about ten past two. A nod to a friend, I asked him and Sandra what they wanted to drink, and then said to Sandra: "I thought you might like to meet my brother". Yes, Mike Gerrard, adventure reviewer extraordinaire, lurking behind several pints of lager. An interesting chat about the world of adventures occupied our mood for the next four or so, then time had to be off and Sandra had to be deposited on a train to Sutton to meet her sister, with whom she would be staying the night.

No problem, you might think. Hang on, this is an *adventure* convention isn't it?

going to, and life is never that easy. Sandra was, understandably enough in the wake of the terrible fire at King's Cross, unwilling to travel on the underground, and since it is many years since I last got a bus in London I decided to do the tourist bit and walk to Victoria. It's not that far, really... I made that mistake once, only in the eventive direction. Saved time in tube fees and had to spend £14 getting my ticket re-issued.)

Hours later the lanterns were going dim, the food was running out and the water had all but vanished, so up and off the first spell on Sandra's carrier bag and proceeded to admire Buckingham Palace by moonlight. Unfortunately we didn't have a foolproof white cube to insulate ourselves in the silence, so we had to endure the most incredible swarm of stagings around the Mall before actually reaching the Palace. Was Lucy-Dreher? Could I see her? There was a guardman, but as he wasn't wearing a red uniform Sandra carried him loudly and he turned on.

Eventually Sandra was deposited on the correct train to Sutton and I was free. I sat back over the events of Friday night for fear of alarming those of a nervous disposition.

Saturday morning started bright and early, and after reading some advance news of Beyond Zork in this weekend's *Dragon* newsletter (*The Statute Line*, no which addressed本身 for immediately Considering Interlopers) My host for the weekend, John Poynter and I decided that we wanted a "sense of contribution". Can the world of adventure as they discipline us all, was an example in itself. I must have been 11 or 12, my neighbours found it slightly easier to park in Sutton, because it was hard to leave our chair(s) down a side street on a yellow line and hope and pray that nothing would happen to it.

After that bad start (we did find an H&P place that had space for 1000 cars, but as we only had one we regrettably I didn't get any better when we tried to the Europe Gallery. Eventually we flagged down two policemen and things got rapidly worse when Chris started off with "excuse me chaps, can you... oh, sorry madam" as a policeman in trousers went red and glared at her. Her friend seemed most annoyed, and directed us to where we wanted to be. Outside the gallery was a Sandra, Shrek-like, bearing the bag of gifts, and after a brief huddle we went into the convention. All lost!

Civic scenario

It was taking place in Sutton Civic Centre, which houses a wonderful library and many other offices and doors and bits, plenty of escape in which to hide ourselves. We did, of course, but hopefully got lots out of the convention proper.

Since Sandra had already been in for a quick look round she just marched straight past the reception desk. I, bearing my Adventure Prize free ticket, was duly registered and walked in after Sandra. Dinni tried to follow but was pulled back by the chap on the desk. "Dinner?" he exclaimed, "my cloak of invisibility's worn off,

must get another one!", and when he signed himself in as Devil-Giving and tried to pay his £20marks for his entrance money he left (behind) one very confused receptionist and joined me and Sandra.

Conventions there was not a lot going on, so we decided to travel to the upstairs part of the convention. Two info, an orange one and a green one, to choose from. A crucial decision, but we got into the orange one, pressed the up button, and after a moment's hesitation we were off.

Upstairs, and an engaging chat with Mike Austin, one of the many Austin responsible for Level 8. On an Atari 1040,



which amazingly managed not to disappear into Sandra's carrier bag. I was running the then latest Level 8 adventure game, Olympia Changes. Wonderful stuff. It's worth buying if just to read the book that accompanies the game, it's a story belonging to the hero himself. Such characters as Araneus and Infron (not sure about the spelling though) Gorden, and grandpa. In the game, whenever an 'I' can appear at the start of a word it is prefixed with a 'g'. Thus you can move grouch, grouch east, the payout for the first few moves is "what grouch" or "what grouch" happens, but grandpa takes this to extremes, at one point calling someone a gongpripe. The graphics on the 1040 were truly wonderful, and Dinni bought a copy there and then.

We began a bit about graphics in adventures, and it seems that many people only put them in because the distributors will not take a game that doesn't have them. Some people care about them of course, the very same people who care about MILB2 and Shakes, two insult-war over the phone-games, but do they have graphical? They do not, so I think we ought to start a campaign for MILB2 to have graphics. After all, if a horrible Dragon can have them, surely something with the power of DING-10 or whatever is capable of having them and displaying superb pictures? Taken longer than most conferences on...

We moved on to another Atari and second Magnetic Scrolls' people by immediately turning the graphics off on the Power and started to solve it from scratch. After expressing our own annoyance at the

many inaccuracies in the game, and how those who argue of the year ahead is beyond me, we went elsewhere.

Actually, we went to a pub, but we'll ignore that adventure and get back to the convention.

Along with Jim O'Rourke, an adventure neophyte experienced upon arrival of our memorable visits to the coffee bar, we went to the last talk of the day insight conducted over the other tea owing to pub opening hours, discussion on the future of adventure games with Peter Kilworth (entertainment speaker from MILB2), only speaking. This man would break no interruptions and discussions of interesting topics, and from the way he put his opinions across it seemed that no-one else in the world knew how to write adventure games except him. I believe I saw an Austin attacking his hand sadly alone point, and as Kilworth closed on, and on more than ever did I want my word of appreciation. Finishing that, I just got up and walked out with Sandra, and Dinni joined us moments later in another recess to the coffee bar. These we met Sandra's sister carrying loads of stuff belonging to Sandra, and that was pretty much the end of the day's entertainment.

Horizontally mobile

Being a kindly fellow Devil gave Sandra a lift back to Euston Station, and we made sure that she got on the right train at the right time. Not one of life's great travellers, our Sandra, as she would be the first to admit. A minor panic at seeing several hundred policemen and police dogs on the station accosting a hoard of football fans somewhere, but otherwise they were going they were not going on to the adventure train and Sandra could go safely home to sunny Wigan.

I stayed on an extra day, principally because I visited a friend at Sunday butchery in Highbury. It was so noisy we nearly missed the pub, but we got there in the end. What a collection of customers! I love it, especially the elderly folk! They do, thousands of them, and they can stay there. Upwards mobility, immobility, and by the time we left the pub we were mobile as well, but ready not very speedily. A distinct incline to the horizontal, I fear.

And the convention? A good idea that no-one seemed to know what to do with, was the overall opinion of Devil and I. More publicity would have helped, invitations to leading adventure journalists and magazines that favour adventures, and certainly more advance warning about it all. But they did their best, and one or two of the exhibitors could have tried harder and made things even better. Level 8 reignited suspense, and words of praise once again for Mike Austin for managing it in out, at times, horrendous scenes conversations.

This post will, I'm sure, be longer and better, and good luck to them. I probably be there, and perhaps I might see one or two of you as well, but not much that's specifically Dragon, but interesting for all adventure nevertheless. And that's that. Bye for this month.

How many monkeys in a coconut?

Gordon Lee has a lousy bunch of puzzles

FROM time to time on this page we present an assortment of miscellaneous problems which can be solved by a computer approach. This month, here is a selection which have been sent in by readers, and which other Dragon users will, no doubt, find good practice in programming.

First, from Paul Wesson of Moosewood-Edge comes a familiar application:

CROSS
ROADS
DANGER

This is an addition sum in which the digits 1 to 9 have to be substituted for the seven different letters representing different digits. Zero is not used. Although the puzzle dates from pre-computer times, Paul suggests a programming approach especially as the letters include those in the word 'Dragon'.

Mention of this 'Dragon' conundrum reminds me of an application program which was one of our competition questions a couple of years ago, and which more recent readers may like to tackle.

DRAGON = ??
USER

In this application, the result of the division is a two-digit number in which the hundreds digit, or may not, be zero. If this value is used and the digits of the result

replaced by the appropriate letters from DRAGON=USER, the result is a familiar English word.

Another problem which can be readily solved by computer is the puzzle of the Monkey and the Coconuts. This has been suggested by David Ingram of Northampton.

Four coconuts are macarooned on a desert island. They had collected some coconuts which they agreed to share the following morning. During the night, the first monkey awoke and, fearing that he may be cheated out of his share of the coconuts, decided to claim his share while the other monkeys were still asleep. Dividing the pile of nuts into five equal piles, he found that he had one coconut left over, so he gave this to the monkey. Hiding his share, he piled the remaining four piles together and went back to sleep. Each of the other four monkeys awoke in turn and decided on the same course of action. Each time there was one nut remaining from the division, which was given to the monkey. The following day they all awoke and were able to divide the remaining coconuts exactly between them. Can you say what is the smallest number of coconuts that could have been present at the start? An additional problem asks for the smallest number of coconuts making the final division the following morning, there was one coconut left over which was given to the monkey, of course!

The subject of perfect squares was of interest to a couple of readers, A. Radford of

Harroweck writes that there are just four eight-digit perfect squares in which the first three digits are the same as the last three digits and are in the same order. Can you find them?

Eight-digit squares are also of interest to Tim Denton of South Warwick who asks:

(1) Find any eight-digit squares in which the number formed by the first four digits is just one more than the number formed from the last four. For example, 12345678 except that here this number is not a perfect square.

(2) Repeat the above, except that this time the first four digits should be one less than the last four.

Finally, here is another problem from Paul Wesson, this time relating to the digits 1 to 9 in the order that they appear on a pocket calculator:

789
456
123

The problem requires you to find sets of four prime numbers, as follows: First, select three different digits so as to make a three-digit number say 1, 2, and 9 to make 129. Notice the pattern formed on the keypad by the positions of these keys, and then rotate this pattern three times 90 degrees each time and have the three three-digit numbers rotated at each turn. In the

Puzzles

WHICH you have found your annual bumper in a while, how many of these dragon puzzles did you solve from last year?

This month, Peter Sofras has sent along an expansion from Oxford, containing five entries of his own and two copies of Peter's original book, which will be given away to lucky winners.

John Marshall Lewis, however, dragon is said to be passed out holding, so those who prefer a more traditional version, may agree they suffice, for last year's bumper.

If you have preference, you may try this:

And if not, well, I would another like on the bumper next month.

Results

These pieces of news of your dragon activities, players, and interesting facts about dragons, come in from all over the world. Many thanks to all those who send me news items, and every contributor, who, when acknowledged, should be honoured for any effort

put into writing up your results.

For this month's bumper, I would like suggestions for the best way to get Dragon User copy to the right place at once in the case of a local post office service centre. This should not involve funding the copy to a recipient of the accompanying post-bumper. Dragon User has not been having much in the P&P office. The best suggestion will receive a bumper sticker. -----

London B&B may receive the bounces from Mr. Blackie May, and...

Anthony M. Chase of Newell, S. A. Research Associate, U.S. Bureau of Mines, Davis Laboratory of Ruthenium, Jerry Purcell of Cleveland, Dennis O'Malley of Cambridge, Michael Vaughan of Newcastle, George H. Hartman of Hull Queen Victoria recognises parts of the picture on page 45. Roy Chisholm of Mansfield, Nottingham and Fred Williams of Mansfield, prior 1971, a regular monitor for sending in reader and humour.

Isaac Smith from the U.K. will continue to set up weird cards until next May (September of course).

This is the first time we've had several poems without anyone writing, and very good they were too. The last poem being April, perhaps, got people interested, and missing the season as we did last December's poem. If I had a Nobel in Poetry, I would have lots of writing up to do every day.

Solutions

See previous

Dragon Answers

Constant Quattro

I have a Dragon 32 and the terminal software which is available to use with a Quattro monitor that I have acquired, unfortunately without a keyboard. This set-up works fine for bulletin boards running 1200 baud, but when I access 1000 baud the Dragon can only receive. How can I fast up the 1000 baud operation so that it runs at 1200 baud?

TM1 (Dragon's serial port control processor) of 8081 based nature. However, the Quattro (which in my case is compatible) has a function known as 'hardware controller' which allows the monitor to operate at any line speed including split reception of the data rate between monitor and Dragon (ie a constant speed).

This can be enabled by sending the monitor the following command sequence:

```
+++ R1&T1 (for non-persistent)  
++ +AT&T (for 1200/75 or  
192/1200)
```

If you get in mess, you can always reset the monitor to the factory default settings using:

```
+++ R1&P
```



Execute a routine

SEVEN years ago, I wrote a little batch program (BASIC command for SCB255N 3.1) to filter TELT page 1 (consists of 100 lines of 80x240 BPP/T1 and 14 in A/P/T2), but the lack of the knowledge of the BASIC command inhibits me. Can you help please?

A David
29 Boundary Drive
West Bridgford
Nottinghamshire
NG2 7EP

You'll actually need to call two ROM routines, firstly 63332/63032 to set the TELT, read the default text memory position and display, then

If you've got a technical question write to Brian Coggs. Please do not send a SAE as Micro+ cannot guarantee to answer individual inquiries.

Stocks for discs

I have a Dragon 32 and would like to get a share driven to go with it. My father says he will buy the stock can find a program which will issue after his shares on the stock exchange. Can you tell me if there are any share programs for the Dragon and if so where can I get one from?

Tony Marcher
Cardiff

The best 'stocks and shares' program I have seen is Sharebox, see here is a brief description for your PC...

Sharebox is a DOS-based program developed by 'Silent Software' designed to enter, maintain and retrieve the records. For example, 'Utilities' could be used as a class name for 'United Rover'. Within the place record available for future use, account code, group number, dividend months (or 48 monthly yield percentage), purchases list, current price, number of shares held, capital gains, tax credits and dividends. Once all the data has been entered, it is a simple matter of keeping the files up to date with the new price for the current period, and then buying selling periods.

Some of the different reports produced are 'last share valuation', which produces a report on the value of shares, 'last capital gain', which shows all the records which contain capital gains (shares purchased during the current year), 'last dividends received', which shows all the dividends and amounts received to date in chronological order, the previous average (the dividends as a percentage of the historical record price).

The 'sharebox-report' report will show all the shares which are expected to pay dividends within the range of months selected, and will estimate the dividend received. Another feature allows a graph to be drawn of the price changes (stock values) over the selected periods. This gives a visual indication of their performance.

Sharebox costs £16.99 and is available from Bob Harris, 26a, 2nd Avenue, Marine Mansions, 4th Alexandra Road, Middlesbrough, Middlesbrough.

Script a page

A friend of mine has told me about a language called Postscript. Apparently, this can be used to create typography displays easily enough on a graphics screen. Convinced me if this language is available for the Dragon would be from nowhere! Can you tell me what this is?

Adrian Clark
Three Stars
London

Postscript is a 'page definition language' developed by a company called Adobe, which is used mainly in laser printers. The advantage of using this language rather an 'intelligent' printer is that the same 'program' can be used with any postscript device (laser printer, screen, tapeplotter etc.) that understands

Postscript to produce the image to the best quality of that device.

Postscript is a more structured form and is quite readable. For example to output the words 'Dragon User' in 100x100 characters at the bottom of a page the Postscript code would read:

```
Postscript fontdef (3600 144 90)  
resolution 300  
0.1inwidth  
(Dragon User) show  
showpage
```

May I know of implementations of Postscript for any basic computers, but Dragon 32/64/128 connected to a laser printer (such as Apple Laserwriter II) which has the language built-in via the serial port.

